BLAUPUNKT
BOSCH Gruppe

Farbfernseher
Colour TV
Televisore a colori

Chassis FM 100-42

PS 55-28	7 667 260
IS 55-28	7 667 200
IS 63-28	7 667 400
IS 63-28 VT	7 667 500
IS 70-28	7 667 800
IS 70-28 VT	7 667 810

Kundendienstschrift · Service Manual
Istruzioni di assistenza

D Btx ∗ 30 39 68 #

VKD 6 D87 464 055

Inhalt

	Seite
Service-Einstellungen	2
Ausbau-Bedienteil	3-4
Servicestellung	4
Verdrahtung der Ablenkspulen	4
Symbole und ihre Bedeutung	5-6
Chassis, Bedienteil	7-24
Ablenkung	24-29
ZF-Verstärker	31-37
Tuner	38-42
Videotext	43-46
Farb/RGB	46-50
Fernbedienung	51-52
Funktionsüberblick	53
Tips zur Fehlersuche	54-57

Contents

	Page
Service Adjustments	2
Removal of Control Unit	3-4
Service position	4
Wiring of Deflection Yoke	4
Symbols and their meaning	5-6
Chassis, Control Unit	7-24
Deflection	24-29
IF Amplifier	31-37
Tuner	38-42
Teletext	43-46
Chroma/RGB	46-50
Remote Control	51-52
Short Functional Description	58
Tips for Fault location	59-62

Contenuto

	Pagina
Regolazioni di servizio	2
Smontaggio sezione di comando	3-4
Posizione di servicio	4
Impianto eléttrico bobine di deviazione	4
Simbolie e loro significati	5-6
Chassis, Sezione di Comando	7-24
Deflessione	24-29
FI Amplificatore	31-37
Tuner	38-42
Televideo	43-46
Colore/RVB	46-50
Comando a distanza	51-52
Prospetto delle funzioni	63
Suggerinenti per la ricerca guasti	64-67

Gedruckt in der Bundesrepublik Deutschland
bei Druckhaus Gebrüder Gerstenberg

Änderungen vorbehalten
Modifications reserved
Con riserva di modifiche

Service-Einstellungen

Die Service-Einstellungen nur am betriebswarmen Gerät vornehmen.

Einstellung Spannung + C
Sender empfangen. Kontrast und Helligkeit auf Minimum einstellen. Voltmeter an Kathode D 514 und Masse. Mit R 637 (Chassis-Platte) einstellen.
IS 55-28 · IS63-28 = 196 V
PS 55-28 · IS 70-28 = 192 V

Bildhöhe
Mit R 2784 (Ablenk-Modul) einstellen.

Bildbreite
Mit R 554 (Chassis-Platte) einstellen.

Ost-West-Entzerrung
Mit R 561 (Chassis-Platte) einstellen.

Bild-Linearität
Mit R 2766 (Ablenk-Modul) einstellen.

Bildlage (horizontal)
Mit R 512 (Chassis-Platte) einstellen.

Horizontal-Frequenz
IC 2705/12 an Masse. Mit R 2731 (Ablenk-Modul) auf Schwebung einstellen. Kurzschluß aufheben.

Vertikal-Frequenz
R 2767 (Ablenk-Modul) so einstellen, daß das Bild langsam von unten nach oben läuft und dann einrastet.

Schärfe (Fokus)
Mit R 501 (Chassis-Platte) einstellen.

Service Adjustments

The service adjustments may be carried out at a set warmed up to normal operating temperature only.

Adjustment voltage + C
Receive transmitter. Set contrast and brightness to minimum. VTVM to cathode D 514 and ground. With R 637 (Chassis Board) adjust.
IS 55-28 · IS 63-28 = 196 V
PS 55-28 · IS 70-28 = 192 V

Picture height
With R 2784 (Deflection Module) adjust.

Picture width
With R 554 (Chassis Board) adjust.

East-West Pin cushion correction
With R 561 (Chassis Board) adjust.

Picture linearity
With R 2766 (Deflection Module) adjust.

Centering (horizontal)
With R 512 (Chassis Board) adjust.

Horizontal frequenzy
IC 2705 connect pin 12 to ground. With R 2731 (Deflection Module) adjust to beat. Finish the short circuit.

Vertical frequency
Adjust R 2767 (Deflection Module) so that the picture is slowly drifting from the bottom to the top and will then be arrested.

Definition (Focus)
With R 501 (Chassis Board) adjust.

Regolazioni di servizio

Le regolazioni di servizio possono iniziarsi solo ad apparecchio caldo.

Regolazione della tensione + C
Ricevere una emittente. Contrasto e luminosita regolati per il minimo. Voltmetro elettronico fra massa e D 514. Regolare la tensione con R 637 (Piastra Chassis).
IS 55-28 · IS 63-28 = 196 V
PS 55-28 · IS 70-28 = 192 V

Ampiezza
Regolare con R 2784 (Modulo Deflessione).

Larghezza del riquadro
Regolare con R 554 (Piastra chassis).

Correzione est-ovest
Regolare con R 561 (Piastra chassis).

Lin. del quadro
Regolare con R 2766 (Modulo Deflessione).

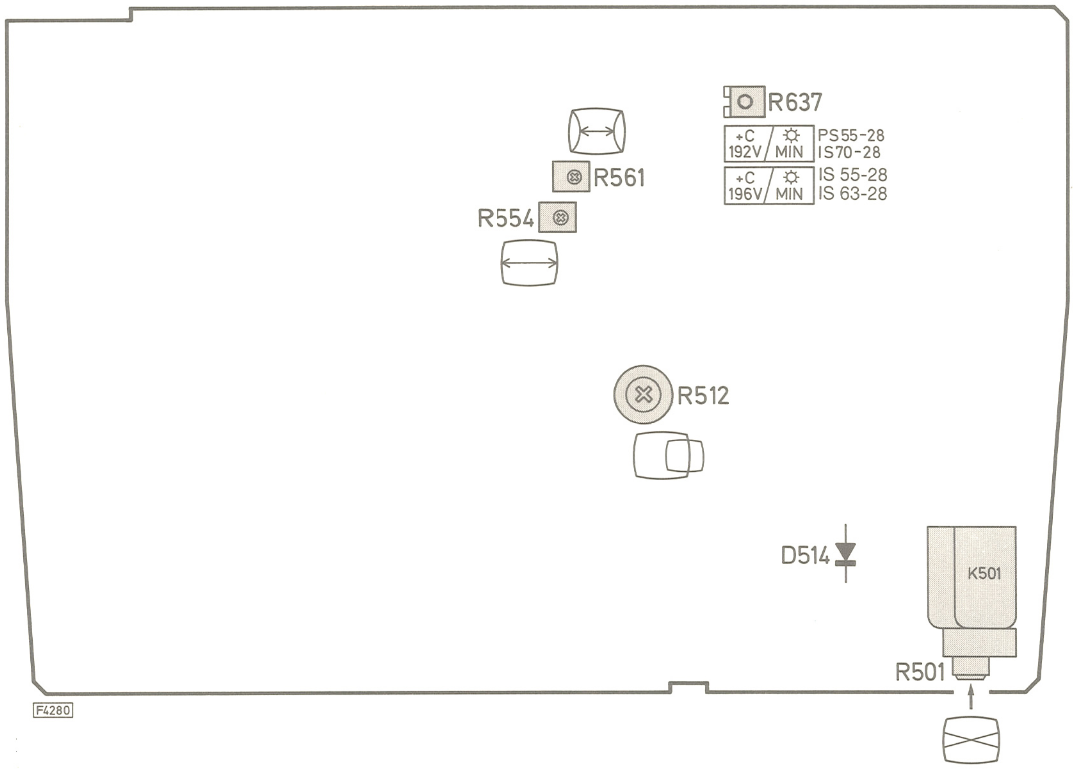
Centratura (orizzontale)
Regolare con R 512 (Piastra Chassis).

Frequenza orrizontale
Collegare a massa il punto IC 2705/12 con R 2731 (Modulo Deflessione). Completare il corto circuito.

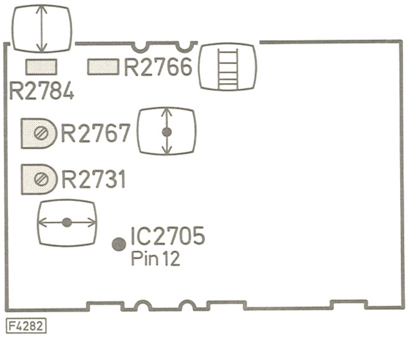
Frequenza verticale
effettuare la regolazione della R 2767 (modulo di deflessione) in modo che l'immagine giri lentamente dall'alto verso il basso fino all'arresto.

Nitidezza (Fuoco)
Regolare con R 501 (Piastra chassis).

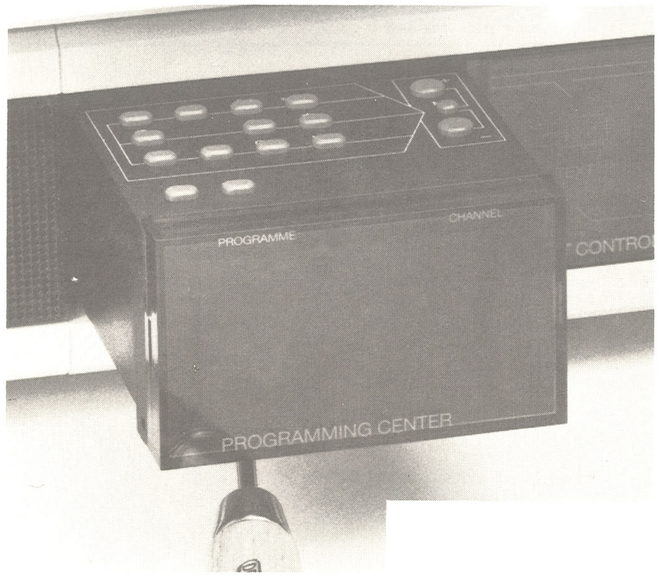
Chassis-Platte
Chassis Board
Piastra chassis

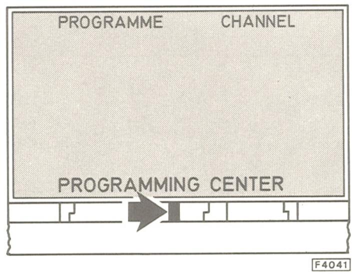


Ablenk-Modul
Deflection Module
Modulo Deflessione



Ausbau-Bedienteil IS 55-28 · IS 63-28 · IS 70-28
Removal of Control Unit
Smontaggio sezione di comando

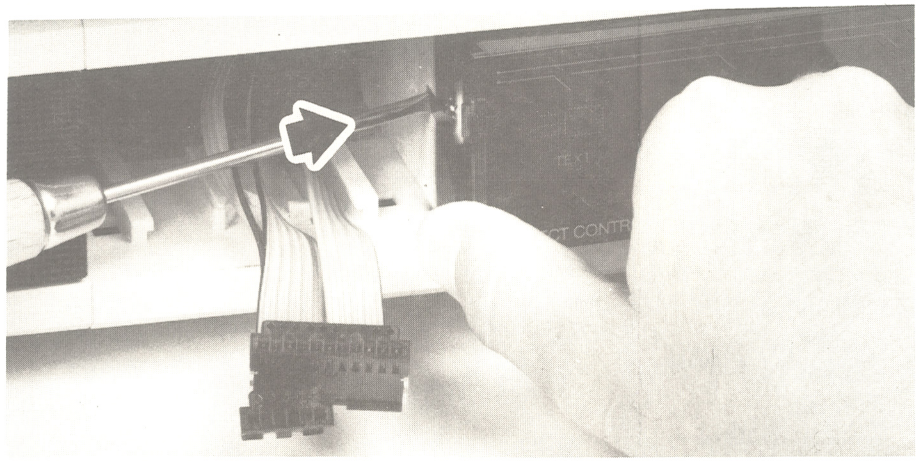

PROGRAMME
CHANNEL
PROGRAMMING CENTER

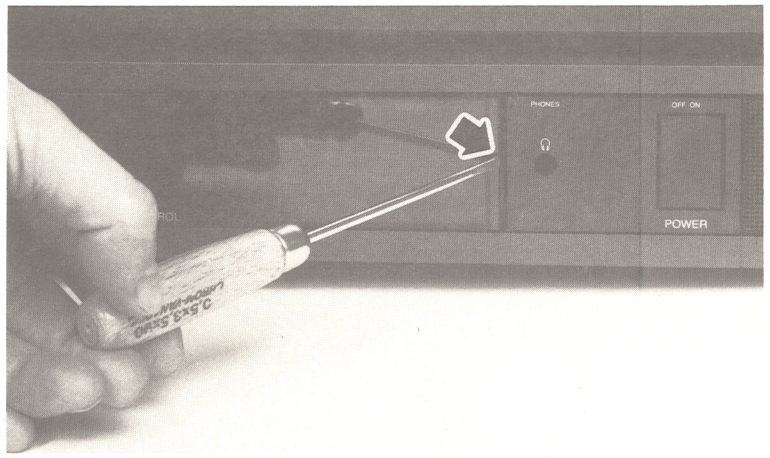

PROGRAMME
CHANNEL
PROGRAMMING CENTER
F4041

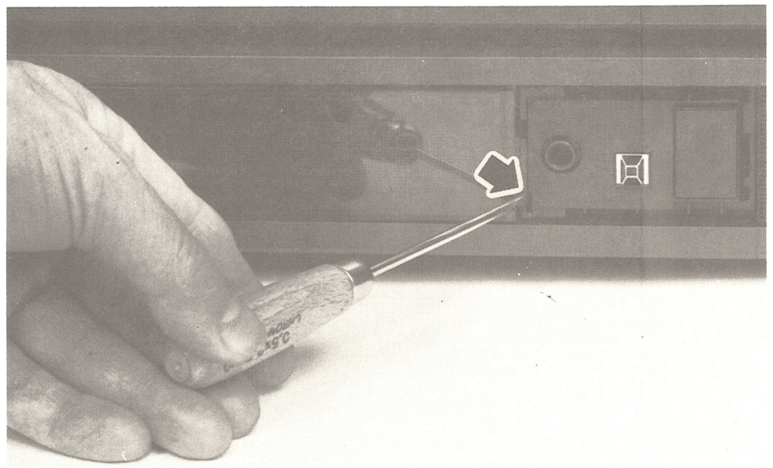
Programm-Schublade bis zum Anschlag herausziehen und etwa 10 mm wieder einschieben. Mit Hilfe eines längeren dünnen Schraubendrehers o. ä., Rasthaken nach rechts zur Seite schieben und Schublade herausziehen.

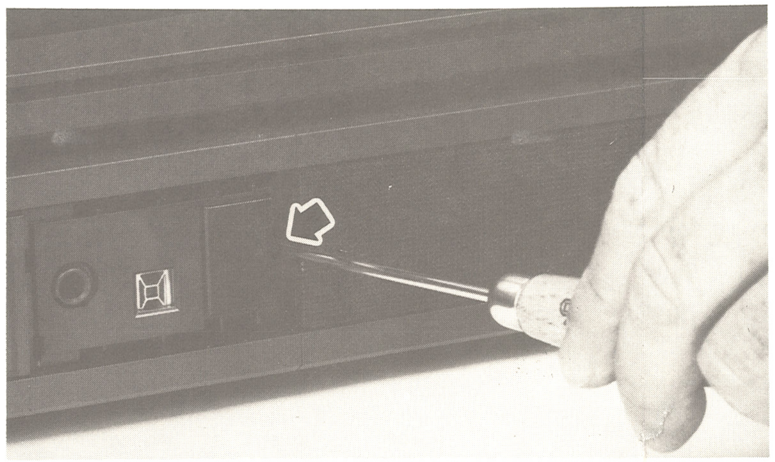
Pull the program drawer out as far as possible, then push it back inwards about 10 mm. Use a rather long, thin screwdriver (or a similar tool) to push the stop hook to the right, and pull the drawer out.

Sfilare cassettino comandi fino all'arresto, inserirlo nuovamente per ca. 10 mm. Con l'aiuto di un giravite lungo e suttile, o qualcosa di simile, spostare il gancino verso destra ed estrarre il cassettino.

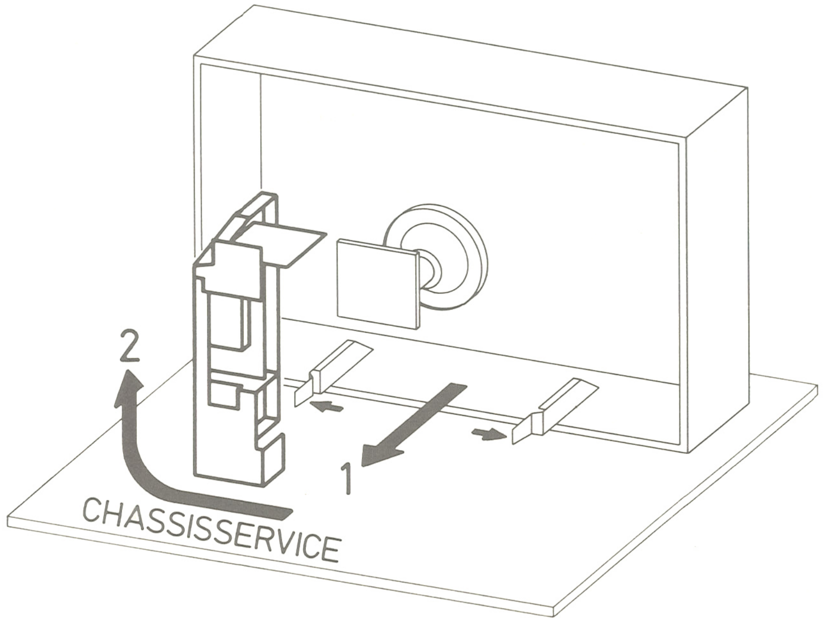



PHONES
OFF ON
POWER



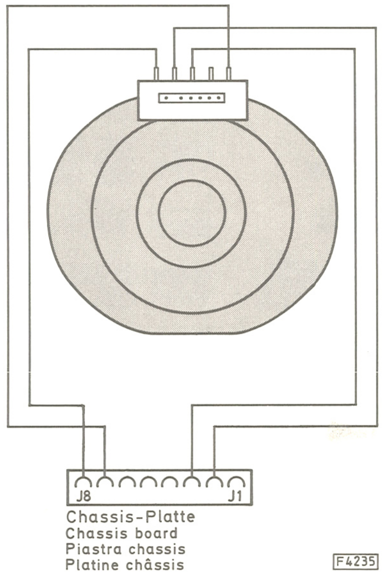


Serviceeinstellung
Service position
Posizione di servizio

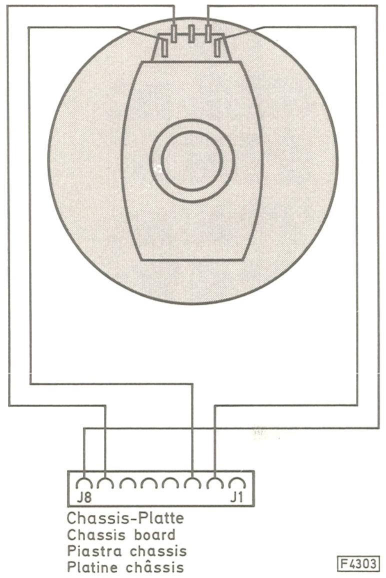

2
1
CHASSISSERVICE

Verdrahtung der Ablenkspulen
Wiring of Deflection Yoke
Impianto elèttrico bobine di deviazione

Bildöhre
Picture Tube
Cinescopio
A 51 EAK 01x05
A 59 EAK 01x01
A 66 EAK 01x01


J8
J1
Chassis-Platte
Chassis board
Piastra chassis
Platine chássis
F4235

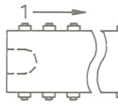
Bildröhre
Picture Tube
Cinescopio
A 51 JAR 43x01
A 51 JSX 61x03


J8
J1
Chassis-Platte
Chassis board
Piastra chassis
Platine chássis
F4303

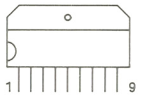
Symbole und ihre Bedeutung
Symbols and their meaning
Simboli e loro significati

P	PROGR.
○○	ZWEI-KANAL-TON TWO-CHANNEL SOUND PER AUDIO BICANALE SON DEUX CANAUX
ME	SPEICHERTASTE MEMORY BUTTON TASTO DI MEMORIA TOUCHE MEMOIRE
S	NORMTASTE TV STANDARD SELECT. BUTTON COMMUT. DI NORMA TOUCHE DE NORME
+	ÄNDERUNG + ALTERATION + MODIFICA + MODIFI +
−	ÄNDERUNG − ALTERATION − MODIFICA − MODIFI −
☼	HELLIGKEIT BRIGHTNESS LUMINOSITA' LUMINOSITE
◑	KONTRAST CONTRAST CONTRASTO CONTRASTE
◕	FARBKONTRAST CONTRAST COLOUR CONTRASTO COLORE CONTRASTE COULEUR
◢	LAUTSTAERKE VOLUME VOLUME SONORE
⋈	FEINABST. FINE TUNING SINT. FINE REGLAGE FIN
C	KANALWAHL CHANNEL SEL. SELEZ. CANALE SELECT. DE CANAUX
▷◁	BALANCE BILANCIAM. BALANCE
≫⎸	SUCHLAUF SELF-SEEK SINT. AUTOM. RECHERCHE AUTOM.
U I/III	SCHALTSP. BANDWAHL BAND SEL. SWITCHING VOLTAGE TENS. DI COMMUT. SELEZ. BANDA TENS. DE COMMUT. SELECT. BANDE
U VHF	SCHALTSP. VHF SWITCHING VOLT. VHF TENS. DI COMMUT. VHF TENS. DE COMMUT. VHF
U UHF	SCHALTSP. UHF SWITCHING VOLT. UHF TENS. DI COMMUT. UHF TENS. DE COMMUT. UHF
U AFC	SCHALTSP. AFC SWITCHING VOLT. AFC TENS. DI COMMUT. AFC TENS. DE COMMUT. AFC
U AV	SCHALTSP. AV AV SWITCHING VOLT. TENS. DI COMMUT. AV TENS. DE COMMUT. AV
U NORM	SCHALTSP. NORM SWITCHING VOLT. STANDARD TENS. DI COMMUT. NORMA TENS. DE COMMUT. STANDARD
U KOIN. 50/60HZ	SCHALTSP. KOINZ. SWITCHING VOLT. COINC. TENS. DI COMMUT. COINC. TENS. DE COMMUT. COINC.
U EURO-AV	SCHALTSP. EURO-AV SWITCHING VOLT. EURO-AV TENS. DI COMMUT. EURO-AV TENS. DE COMMUT. NORME FR
U VQ	SCHALTSP. VIDEO QUELLE SWITCHING VOLT. VIDEO SOURCE TENS. DI COMMUT. SORG. VIDEO TENS. DE COMMUT. SOURCE VIDEO
U DATA	SCHALTSP. DATENBETR. SWITCHING VOLT. DATA MODE TENS. DI COMMUT. DATI TENS. DE COMMUT. FONCT. DONNEES
U 4,5MHZ	SCHALTSP. 4,5 MHZ SWITCHING VOLT. 4,5 MHZ TENS. DI COMMUT. 4,5 MHZ TENS. DE COMMUT. 4,5 MHZ
U τ	REGELSP. VERZOEGERT DELAYED CONTR. VOLTAGE TENS. DI CONTR. RITARD. TENS. DE REGUL. RETARDEE
U TUN.	ABSTIMMSP. TUNER TUNING VOLT. TUNER TENS. DI SINTONIA TUNER TENS. D'ACCORD TUNER
U AFC	REGELSP. AFC AFC CONTROL VOLT. TENS. DI CONTR. AFC TENS. DE REGUL. AFC
U MUTE	STUMMSCHALTUNG MUTING SILENZIAMENTO SILENCIEUX
⎍	TASTIMPULS GATING PULSE IMPULSO A CADENZA IMPULS. DE DECLENCHEMENT
⎍ VERT.	VERT. TASTIMPULS VERT. GATING PULSE IMP. A CADENZA VERT. IMP. TRAME
∩∩ VERT.	VERT. PARABEL VERT. PARABOLA PARABOLA VERT. SIGNAL PARABOLIQUE
◿◿ VERT.	VERT. SAEGEZAHN VERT. SAW TOOTH DENTE DI SEGA VERT. SIGNAL DENT DE SCIE
⎍⎍ HOR.	HOR. ANSTEUERUNG HORIZ. DRIVE PILOTAGGIO ORIZZ. SYNCHR. LIGNES
⋀ REF.	REF. IMPULS REFERENCE PULSE IMP. DI RIFER. IMP. DE REFER.
⊟	SCHUTZSCHALTUNG CIRCUIT PROTECTION CIRCUITO DI PROTEZIONE CIRCUIT DE SECURITE
⁂	FARBTON TINT TINTA TEINTE
◢ REF.	REF. LAUTSTAERKE VOLUME REF. VOLT. TENS. DI RIF. VOLUME TENS. DE REF. VOL. SONORE
FBAS	FBAS-SIGNAL CCVS SIGNAL SEGNALE SVCC SIGNAL VIDEO COMPOSITE
SSC	SUPERSANDCASTLE
SB	STRAHLSTR. BEGR. BEAM CURRENT LIM. CORRENTE CATODICA MEDIA LIM. COUR. DE FAISCEAU
SSB	SPITZ. STRAHLSTR. BEGR. PEAK BEAM CURRENT LIMITING CORR. CATODICA DI PICCO LIM. DE FAISCEAU CRETE
R	ROT-SIGNAL RED SIGNAL SEGNALE ROSSO SIGNAL ROUGE
G	GRUEN-SIGNAL GREEN SIGNAL SEGNALE VERDE SIGNAL VERT
B	BLAU-SIGNAL BLUE SIGNAL SEGNALE BLU SIGNAL BLEU
Y	Y-SIGNAL SEGNALE Y SIGNAL Y
F	F-SIGNAL CHROMA SIGNAL SEGNALE F SIGNAL CHROMA
SW	SCHWARZWERT BLACK LEVEL LIVELLO DEL NERO NIVEAU DU NOIR
AUDIO	AUDIO-SIGNAL SEGNALE AUDIO SIGNAL AUDIO
AUDIO-L	AUDIO SIGNAL LINKS AUDIO SIGNAL LEFT SEGNALE AUDIO SINISTRA SIGNAL AUDIO GAUCHE
AUDIO-R	AUDIO SIGNAL RECHTS AUDIO SIGNAL RIGHT SEGNALE AUDIO DESTRA SIGNAL AUDIO DROIT
EURO-AV VIDEO	VIDEO SIGNAL EURO-AV SEGNALE VIDEO EURO-AV SIGNAL VIDEO NORME FR
EURO-AV AUDIO-R	AUDIO SIGNAL EURO-AV RECHTS AUDIO SIGNAL EURO-AV RIGHT SEGNALE AUDIO EURO-AV DESTRA SIGNAL AUDIO NORME FR DROIT
EURO-AV AUDIO-L	AUDIO SIGNAL EURO-AV LINKS AUDIO SIGNAL EURO-AV LEFT SEGNALE VIDEO EURO-AV SINISTRA SIGNAL AUDIO NORME FR GAUCHE
IR	IR-SIGNAL SEGNALE IR SIGNAL IR
U_{G1}	SPG. GITTER 1 VOLTAGE GRID 1 TENS. GRIGLIA 1 TENS. GRILLE G1
$U_{FOC.}$	FOKUSSP. FOCUSSING VOLTAGE TENS. DI FOCALIZZ. TENS. DE FOCALIS.
U_H ⚡	HOCHSPANNUNG EHT VOLTAGE ALTA TENS. HAUTE TENS.
U_{SG}	SCHIRMGITTERSP. SCREEN-GRID VOLT. TENS. GRIGLIA SCHERMO TENS. GRILLE-ECRAN
TE	TEXT ENABLE
SCL	I^2C-CLOCK
VCL	VCR-CLOCK
ICL	I-BUS-CLOCK
SDA	DATEN DATA DATI DONNEES
ZF	ZF-SIGNAL IF SIGNAL SEGNALE FI SIGNAL FI
PP	PAL PRIORITAET PAL PRIORITY PRIORITA' PAL PRIORITE PAL
F-DIR.	F-SIGNAL DIREKT F SIGNAL DIRECT SEGNALE F DIRETTO SIGNAL CHROMA DIRECT
F_V	FV-SIGNAL FV SIGNAL SEGNALE FV SIGNAL FY
F_U	FU-SIGNAL FU SIGNAL SEGNALE FU SIGNAL FX
F-VERZ	F-SIGNAL VERZOEGERT F SIGNAL DELAYED SEGNALE F RITARD. SIGNAL CHROMA RETARDE
DL	VERZOEGERUNGSLEITUNG DELAY LINE LINEA DI RITARDO LIGNE A RETERD
U SCHUTZ	SCHALTSP./SCHUTZFUNKTION SWITCHING VOLT. /PROTECTIVE FUNCTION TENS. DI COMMUT. /FUNZ.DI PROTEZ. TENS. DE COMMUT. / SECURITE
FBAS SYNC.	FBAS/SYNC.-SIGNAL CCVS/SYNC. SIGNAL SEGNALE SINCR. /VIDEO COL. COMPOSITO SIGNAL SYNC./VIDEO COMPOSITE
SYNC.	SYNC.-SIGNAL SYNC. SIGNAL SEGNALE SINCR. SIGNAL SYNC.
U 50/60 HZ	SCHALTSP. 50/60HZ SWITCHING VOLT.50/60HZ TENS. DI COMMUT. 50/60HZ TENS. DE COMMUT. 50/60HZ
U BTX	SCHALTSP. BTX SWITCHING VOLT. BTX (VIEWDATA) TENS. COMMUT. VIDEOTEL TENS. COMMUT. VIDEOTEXTE
SYNC. VT	SYNC. VT SYNC. VT (TELETEXT) SINCR. TELEVIDEO SYNC. TELETEXTE
SYNC. BTX	SYNC. BTX SYNC. BTX (VIEWDATA) SINCR. VIDEOTEL SYNC. VIDEOTEXTE
U RESET	SCHALTSP. RESET SWITCHING VOLT. RESET TENS. COMMUT. RESET
U STAND BY	SCHALTSP. STAND BY SWITCHING VOLT. STAND BY TENS. COMMUT. STAND BY TENS. COMMUT. VEILLE
U HUB	SCHALTSP. HUB SWITCHING VOLT. DEVIATION TENS. COMMUT. DEVIAZIONE TENS. COMMUT. DEVIATION
U DEEM	SCHALTSP. DEEM SWITCHING VOLT. DEEMPHASIS TENS. COMMUT. DEENFASI TENS. COMMUT. DESACCENT.
U CAM. AV	SCHALTSP. KAMERA WIEDERG. SWITCHING VOLT. CAMERA PLAYBACK TENS. COMMUT. RIPRODUZ. TELECAMERA TENS. COMMUT. REPROD. CAMERA
U LED	SCHALTSP. LED LED SWITCHING VOLT. LED TENS. DI COMMUT. TENS. DE COMMUT. LED
↔	ZEILENBREITE LINE WIDTH LARGHEZZA DI RIGA AMPLITUDE HORIZONTALE
)↔(	OST / WEST AMPLITUDE EAST / WEST AMPLITUDE AMPIEZZA EST / OVEST AMPLITUDE EST / OUEST
⦀	HOR. LINEARITAET HORIZ. LINEARITY LINEAR. ORIZZ. LINEAR. HORIZONT.
⧉	BILDLAGE HOR. HORIZ. PICTURE POSITION POSIZIONE ORIZZ. D'IMMAGINE CADRAGE HORIZONT.
⋈	FOKUSREGLER FOCUS CONTROL REGOLAT. DI FOCALIZZ. REGLAGE DE FOCALISATION
⧈	BILDLAGE VERT. VERT. PICTURE POSITION POSIZ. VERT. D'IMMAGINE CADRAGE VERTICAL
↕	BILDAMPLITUDE FIELD AMPLITUDE AMPIEZZA D'IMMAGINE AMPLITUDE VERTICALE
⏢	TRAPEZ TRAPEZIUM TRAPEZIO TRAPEZE
←●→	HOR. FREQUENZ HOR. FREQUENCY FREQ. ORIZZ. FREQ. HORIZ.
↕●	VERT. FREQUENZ VERT. FREQUENCY FREQ. VERT.
☰	VERT. LINEARITAET VERT. LINEARITY LINEAR. VERT. LINEAR. VERT.
≀≀	OST/WEST SYMMETRIE EAST/WEST SYMMETRY SIMMETRIA EST/OVEST SYMMETRIE EST/OUEST

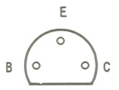
Wichtige Schaltzeichen
Important circuit symbols
Segni circuitali importar:ti



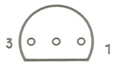
IC'S VON UNTEN GESEHEN
IC'S SEEN FROM BOTTOM
IC'S VISTI DI SOTTO
IC'S VUS DU DESSOUS



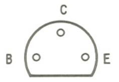
TDA 4601



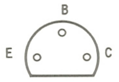
BF 199



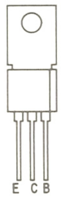
78 L05 CP



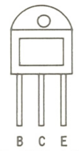
BF 421 / BF 422
BC 637 / BF 423



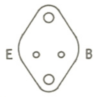
BC 548 / BC 558
BC 337/25
PH 2222
BC 338 / BC 324
BF 414
BC 308 / BC 248
BC 547



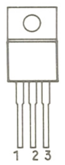
GF 759



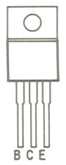
BU 508A / BU 903
BU 508D / BU 908



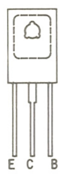
BU 208A
BU 546



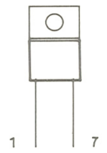
TY 40164 / MC 7505
MC78 M05 CT
7812



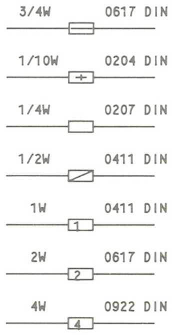
BD 561G
BU 908
BU 903
S 668T
BUT 11 A
BUT 56A



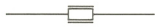
BD 561 G
BD 139



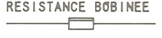
TDA 8170



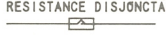
WIDERSTAND NICHT BRENNBAR
RESISTOR NOT FLAMMABLE
RESISTENZA NON INFIAMMABILE
RESISTANCE ININFLAMMABLE



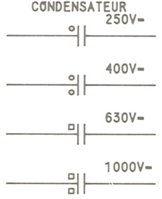
DRAHTWIDERSTAND
WIRE RESISTOR
RESISTENZA A FILO
RESISTANCE BOBINEE



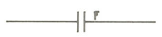
SICHERUNGSWIDERSTAND
SAFETY RESISTOR
RESISTENZA DI SICUREZZA
RESISTANCE DISJONCTABLE



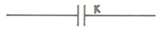
KONDENSATOR
CAPACITOR
CONDENSATORE
CONDENSATEUR



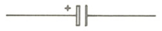
FOLIE
FOIL
A FOGLIA
FOLIO PLASTIQUE

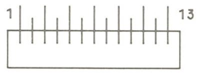


KERAMIK
CERAMIC
CERAMICO
CERAMIQUE

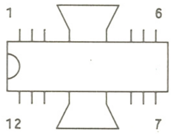


ELKO
ELECTROLYTIC
ELETTROLITICO
ELECTROLYTIQUE



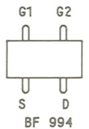


TDA 2653A



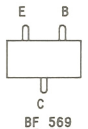
TDA 2655B

SOT 143

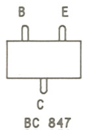


BF 994
BF 996

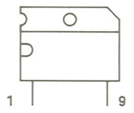
SOT 23



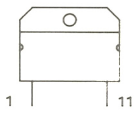
BF 569
BF 579



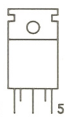
BC 847
BC 858



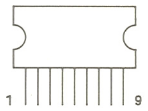
TDA 4935



DL 60292



TDA 2040

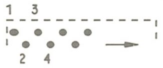


TDA 3654
TDA 3653A

⚠ BEI ERSATZ AUS SICHERHEITSGRUENDEN NUR ORIGINALBAUTEILE VERWENDEN.
FOR REASONS OF SAFETY USE ORIGINAL PARTS ONLY WHEN REPLACING.
IN CASO DI SOSTITUZIONE UTILIZZARE PER RAGIONI DI SICUREZZA SOLAMENTE PEZZI DI RICAMBIO ORIGINALI.
EN CAS DE REMPLACEMENT N'UTILISER, POUR DES RAISONS DE SECURITE, QUE DES PIECES D'ORIGINE.

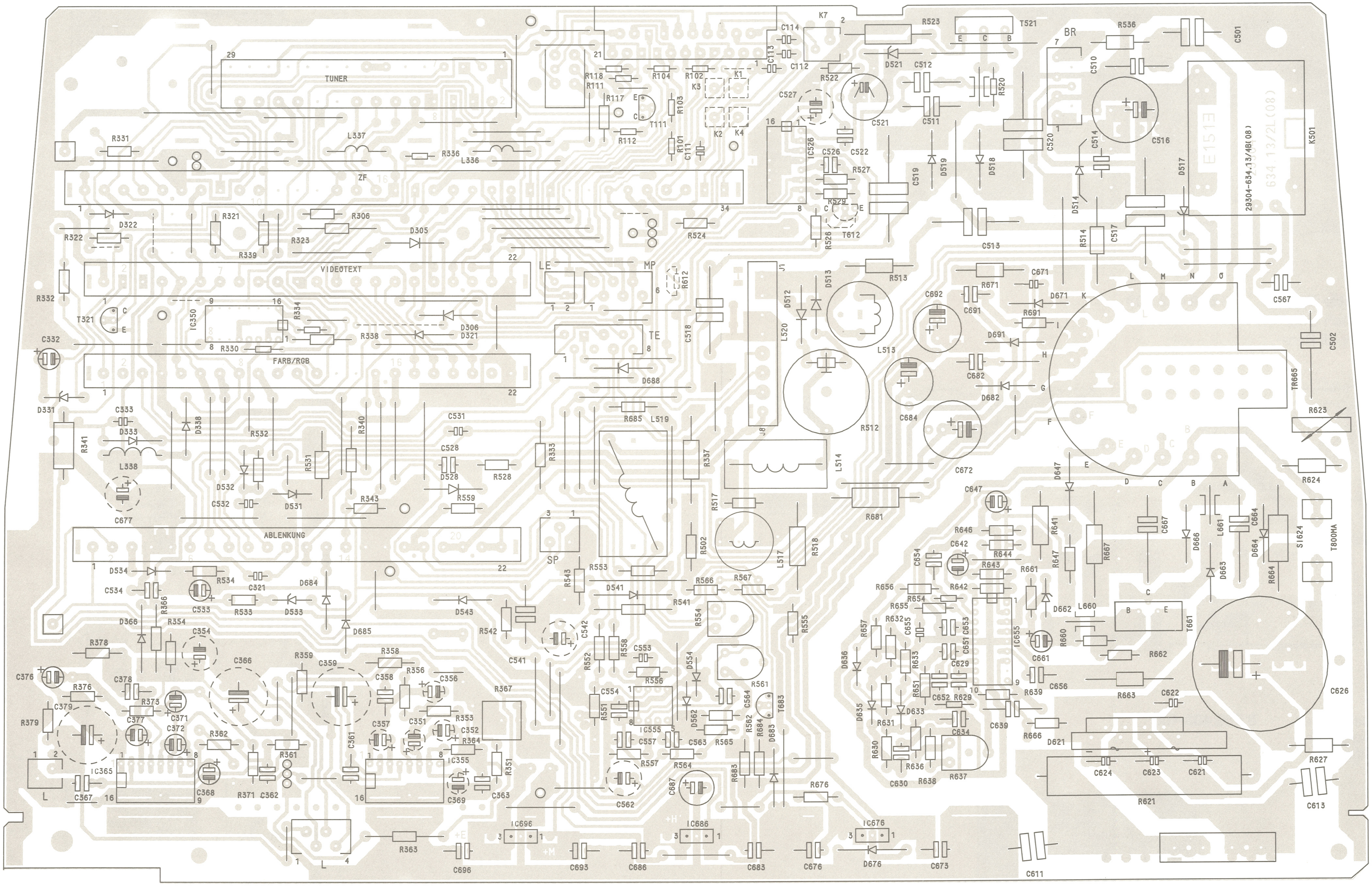
BEI EINGRIFFEN SCHUTZMASSNAHMEN FUER MOS-BAUTEILE BEACHTEN!
WHEN HANDLING MOS-CIRCUITS, ALWAYS OBSERVE THE MOS PROTECTION MEASURES!
ADOPERANDO COMPONENTI O CIRCUITI MOS OSSERVARNE LE CORRISPONDENTI MISURE DI PROTEZIONE!
LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES PRESCRIPTIONS MOS!

STECKERUNTERTEIL ZAEHLRICHTUNG
PLUG BOTTOM PART COUNTING DIRECTION
PARTE INFER. SPINA DIREZ. CONTEGGIO
SENS COMPTAGE PARTIE INFER. CONNECTEUR

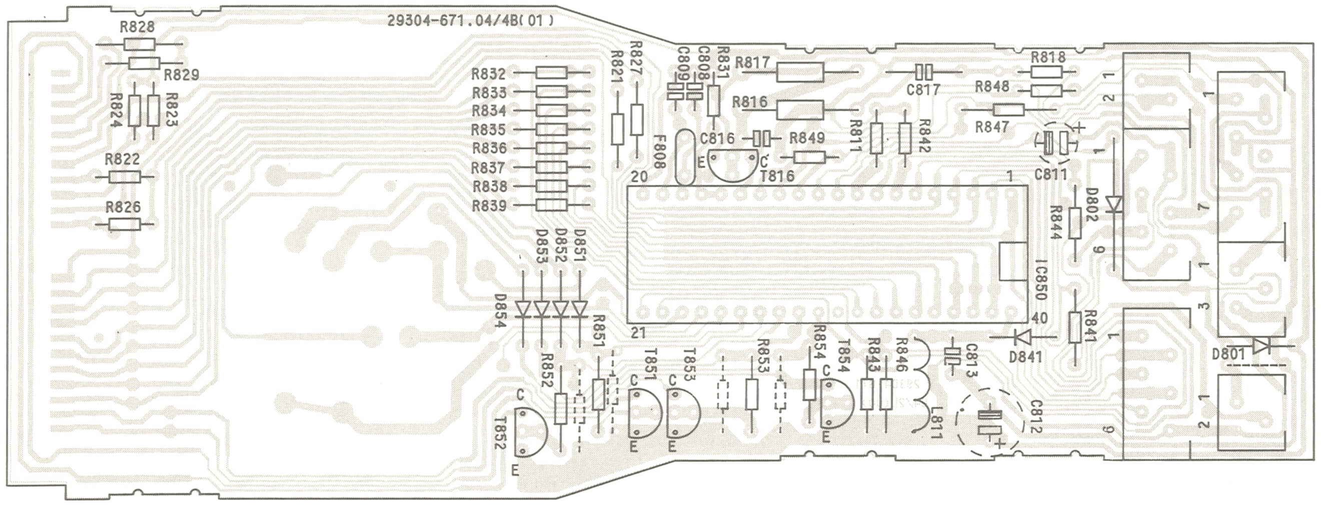


LOETSEITE
SOLDER SIDE
LATO SALDATURE
COTE SOUDURE

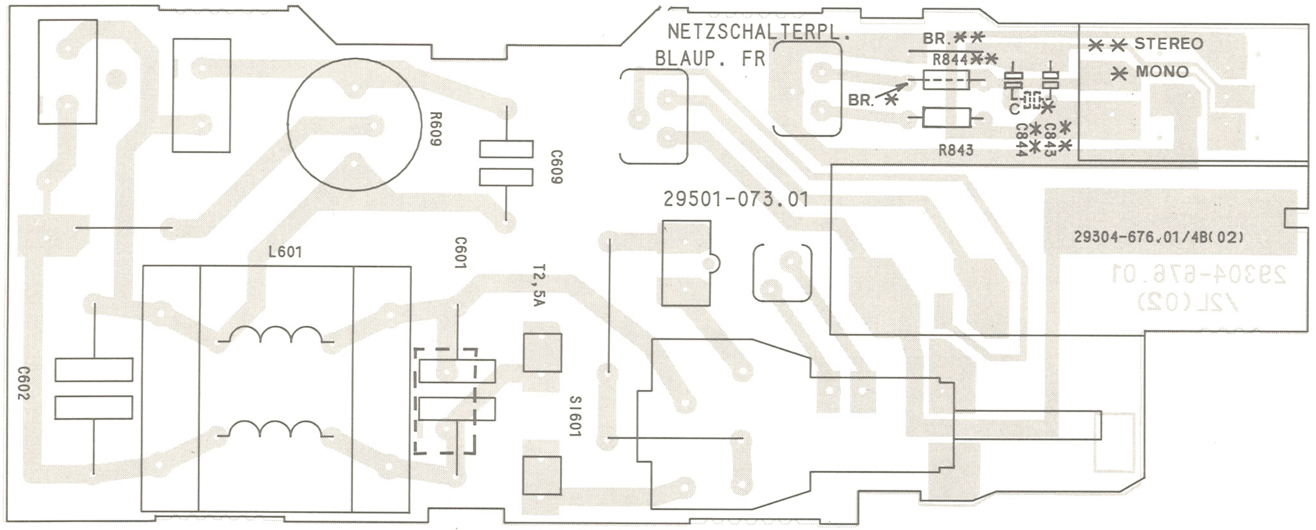
Chassis-Platte
Chassis Board
Piastra chassis


K7
C114
C113
C112
R523
T521
E C B
BR
R536
C501
TUNER
R118
R111
R104
R102
K1
K3
R522
D521
C512
C510
C527
C521
R520
C511
R117
T111
R103
R112
R101
C111
K2
K4
IC526
C526
C522
R527
R529
T612
C519
D519
D518
C520
C514
C516
D517
K501
E1513
29304-634.13/48(08)
634 13/2L(08)
R331
L337
R336
L336
ZF
R321
R306
D305
D322
R322
R323
R339
R524
R526
C513
D514
R514
C517
VIDEOTEXT
LE
MP
TE
R612
J1
D513
R513
R671
C671
R332
IC350
R334
D512
C692
C691
D671
C567
T321
D306
D321
R338
R330
FARB/RGB
C518
L520
L513
R691
D691
C332
C502
D688
C682
TR665
D331
C333
D333
D338
R532
R340
C531
R685
L519
J8
C684
D682
R341
L338
C528
D528
R528
R333
R337
R512
R623
D532
R531
C532
D531
R343
R559
L514
C672
D647
R624
C677
R517
R681
C647
ABLENKUNG
SP
R502
R518
L517
R646
C642
R644
R641
R647
R667
C667
D666
L661
C664
D664
S1624
T800MA
D534
R534
C321
D684
R543
R553
D541
R566
R567
C654
R643
R661
R642
D663
R664
C534
C533
R366
R533
D533
D543
R541
R554
R555
R656
R654
R655
R632
D662
L660
T661
D366
R354
C354
D685
R542
C542
R558
C553
R657
C655
C653
IC655
R660
R378
C366
R359
C359
R358
R356
C358
C356
R367
C541
R552
R556
D554
C651
C629
C661
R662
C376
C378
R376
C379
R373
C371
C377
C372
R379
R362
R361
C361
C357
C351
R353
R364
IC355
R351
C554
R551
IC555
C557
C563
R565
D562
C564
R562
R684
D683
T683
R561
D636
D635
R631
D633
R633
R651
C652
R629
C656
R639
C639
R663
C622
C626
D621
R666
C367
IC365
C368
R371
C362
C369
C363
R557
C562
C687
R564
R683
R676
R630
C630
R636
R638
R637
C634
R627
C624
C623
C621
R621
C613
IC696
IC686
IC676
R363
C696
C693
C686
C683
C676
D676
C673
C611

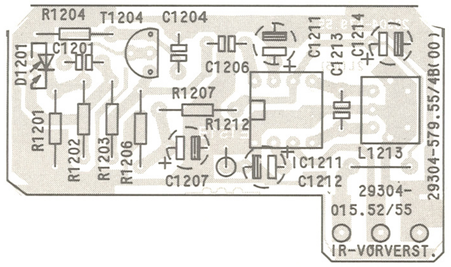
Bedien-Schublade **8 669 423 805**
Operating Insert
Inserto Comandi


29304-671.04/4B(01)
R828
R829
R824
R823
R822
R826
R832
R833
R834
R835
R836
R837
R838
R839
R827
R821
C809
C808
R831
R817
R816
C816
R849
T816
F808
R811
R842
C817
R818
R848
R847
C811
D802
R844
IC850
R841
D841
D801
D854
D853
D852
D851
R851
R852
T852
T851
T853
R853
R854
T854
R843
R846
C813
L811
C812

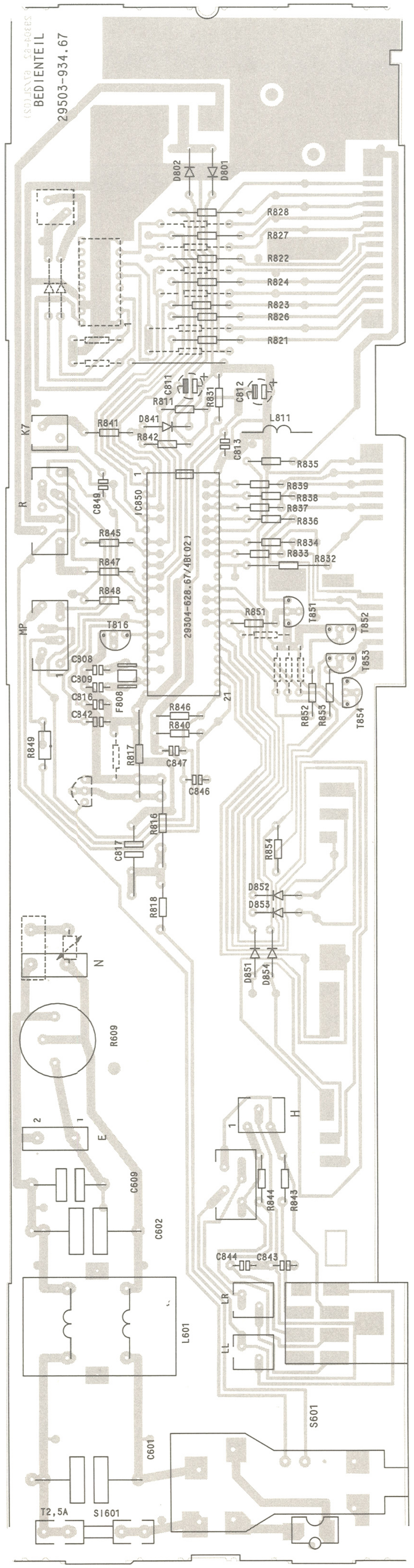
Netzschalter-Einheit **8 669 423 203**
Mains Switch Unit
Unita Interr. di Rete

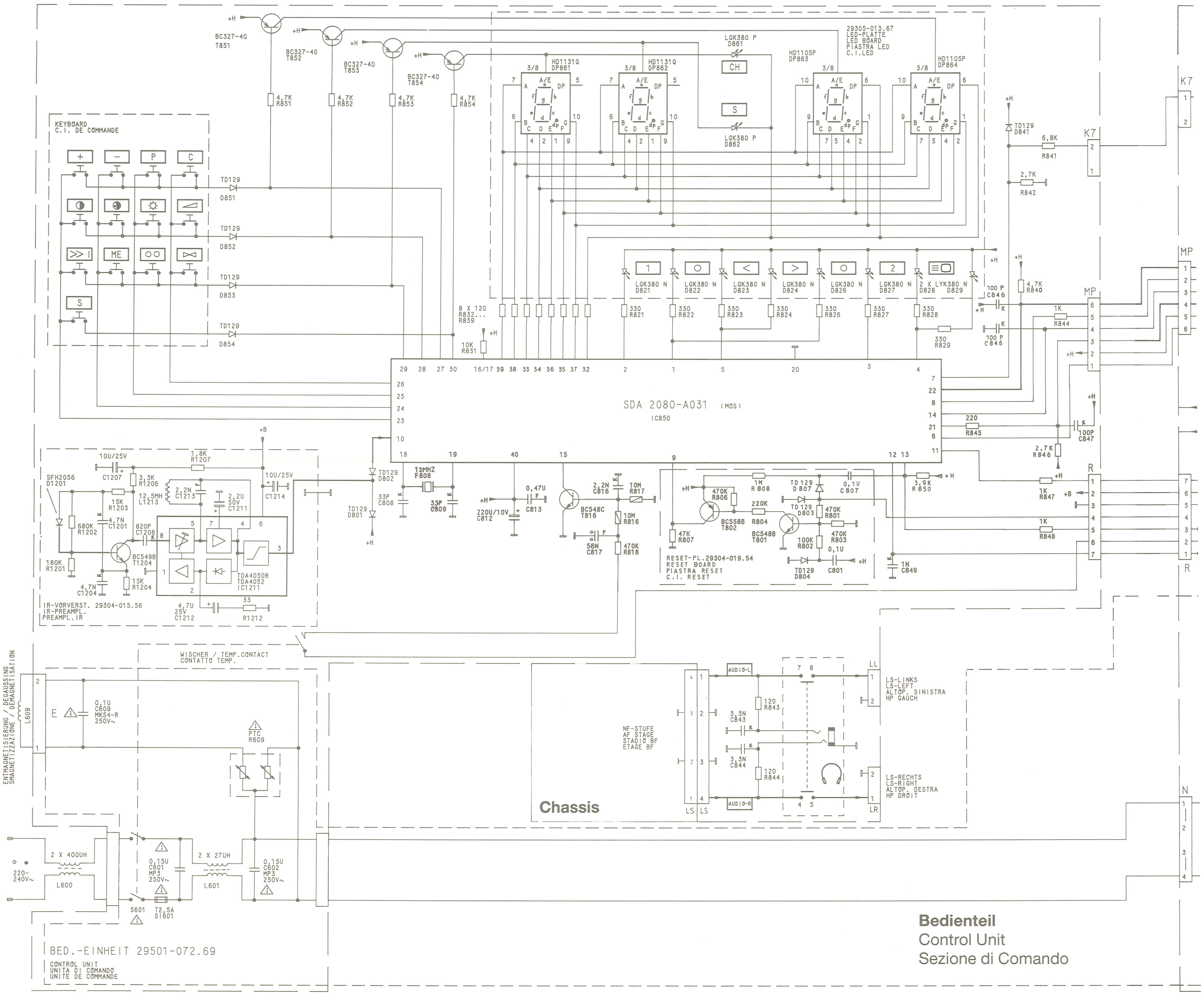

NETZSCHALTERPL.
BLAUP. FR
BR.✱✱
R844✱✱
BR.✱
R843
C843
C844
✱✱ STEREO
✱ MONO
R609
C609
L601
C601
T2,5A
29501-073.01
29304-676.01/4B(02)
C602
SI601

IR-Vorverstärker **8 669 433 406**
IR-Pre-Amplifier
Preamplifier IR

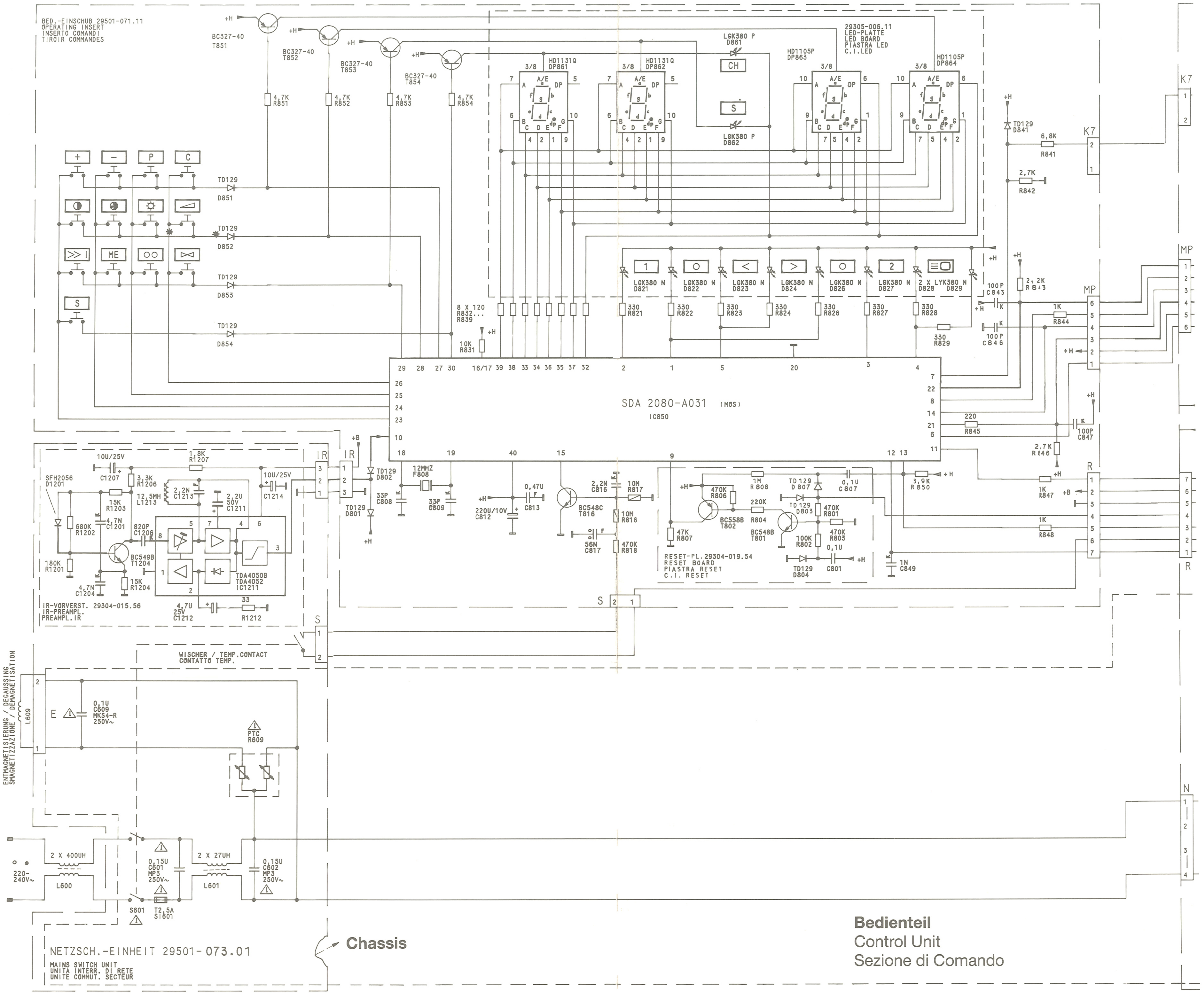

R1204
T1204
C1204
C1201
D1201
C1206
C1211
C1213
C1214
R1207
R1212
R1201
R1202
R1203
R1206
C1207
IC1211
C1212
L1213
29304-579.55/4B(00)
29304-015.52/55
IR-VORVERST.

Bedienteil **8 669 433 434**
Control Unit
Sezione di Comando

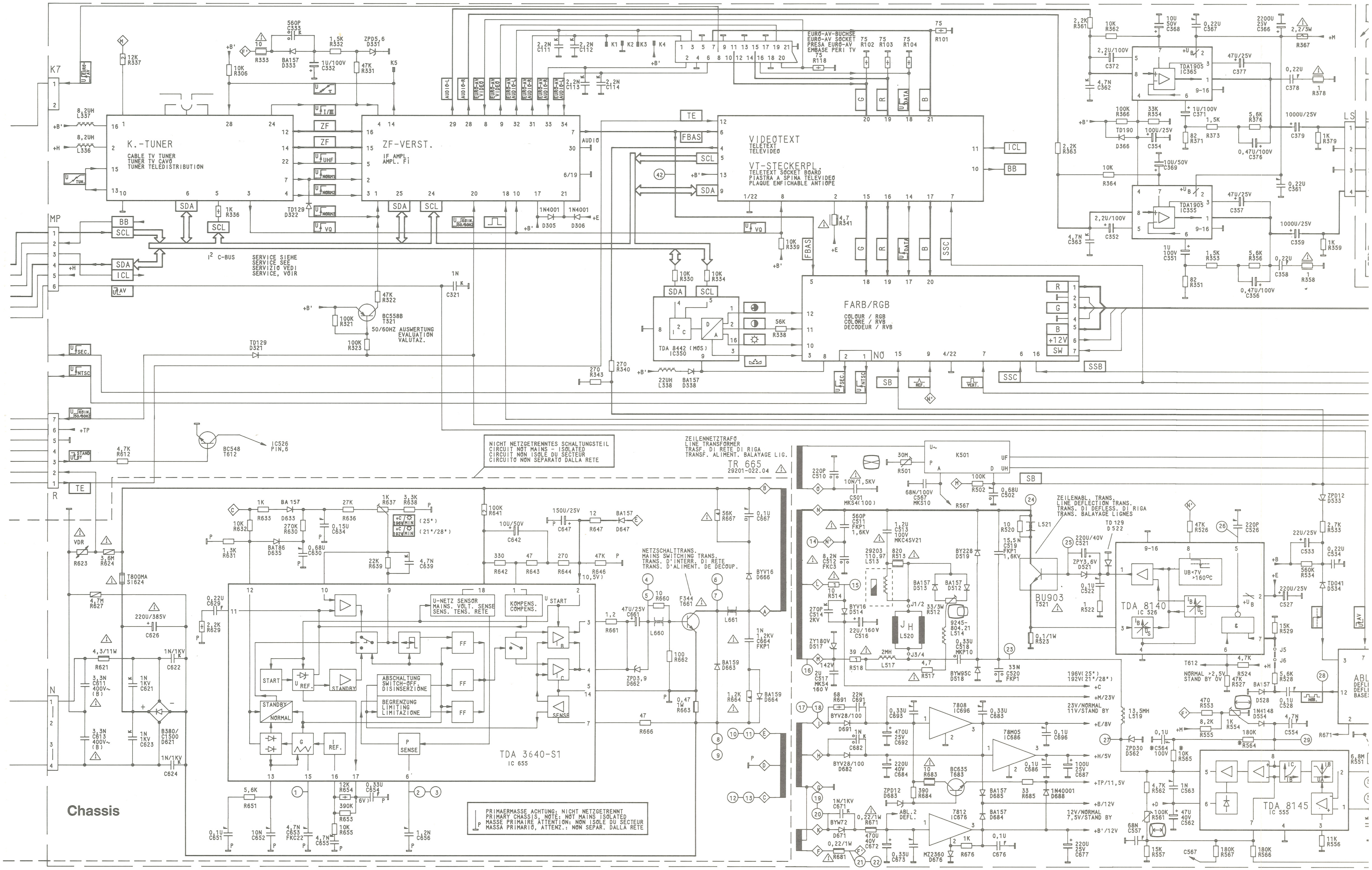

BEDIENTEIL
29503-934.67
D802
D801
R828
R827
R822
R824
R823
R826
R821
R811
C811
R831
C812
L811
K7
R841
D841
R842
C813
R835
R839
R838
R837
R836
R834
R833
R832
C849
IC850
R845
R847
R848
29304-628.67/4B(02)
R851
T851
T852
T853
T854
T816
C308
C309
C310
C342
F808
R852
R853
R846
R840
C847
R849
R817
C846
R816
C817
R854
R818
D852
D853
D851
D854
R609
R844
R843
C609
C602
C844
C843
L601
S601
C601
T2,5A
SI601

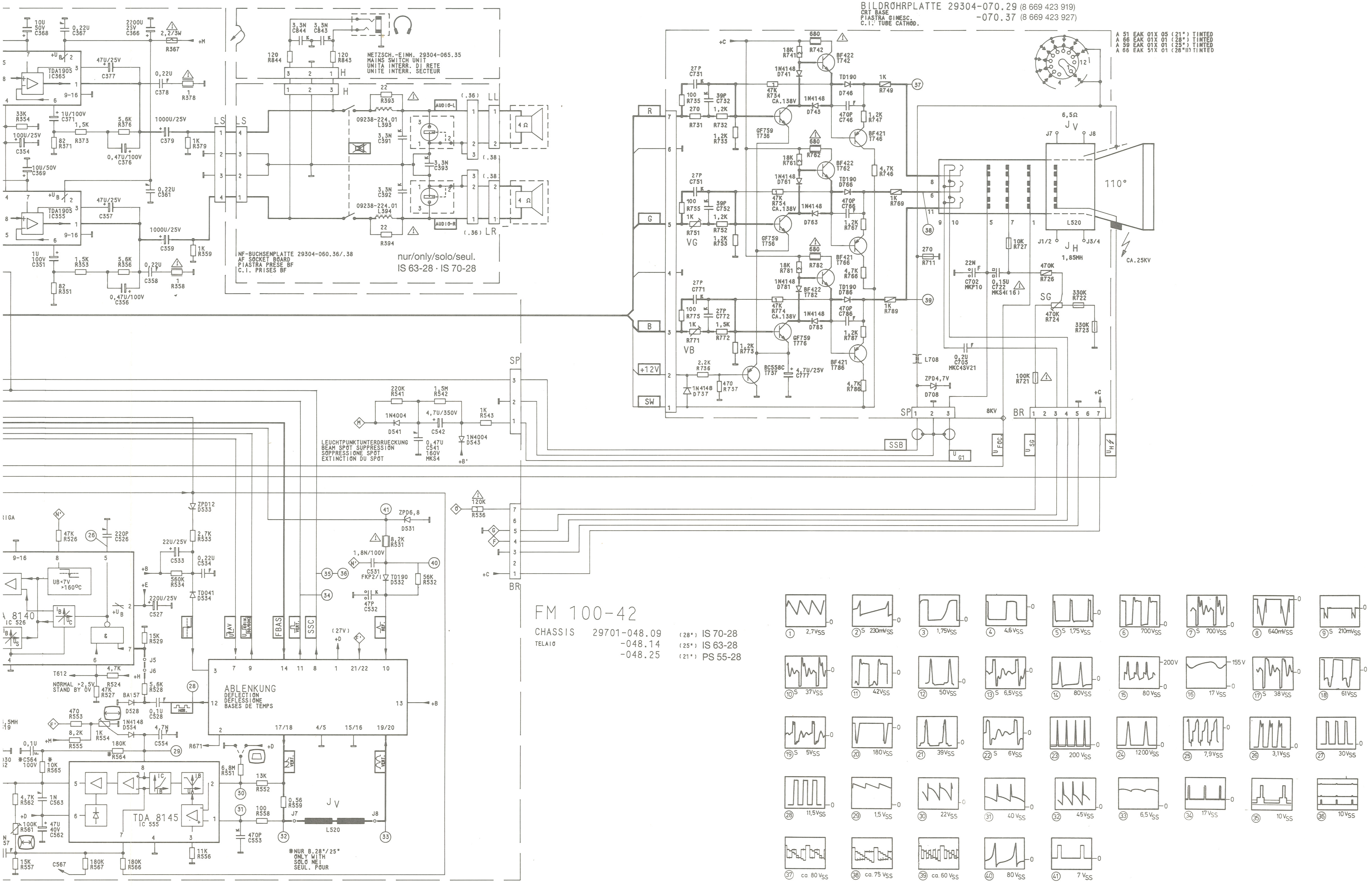

BC327-40
T851
BC327-40
T852
BC327-40
T853
BC327-40
T854
4,7K R851
4,7K R852
4,7K R853
4,7K R854
HD1131Q DP861
HD1131Q DP862
LGK380 P D861
CH
S
LGK380 P D862
HD1105P DP863
29305-013.67
LED-PLATTE
LED BOARD
PIASTRA LED
C.I.LED
HD1105P DP864
KEYBOARD
C.I. DE COMMANDE
+
-
P
C
ME
S
TD129 D851
TD129 D852
TD129 D853
TD129 D854
LGK380 N D821
LGK380 N D822
LGK380 N D823
LGK380 N D824
LGK380 N D826
LGK380 N D827
2 X LYK380 N D828 D829
330 R821
330 R822
330 R823
330 R824
330 R826
330 R827
330 R828
330 R829
8 X 120 R832... R839
10K R831
100 P C846
4,7K R840
TD129 D841
6,8K R841
2,7K R842
1K R844
K7
MP
SDA 2080-A031 (MOS)
IC850
220 R845
100P C847
2,7K R846
R
1K R847
1K R848
3,9K R850
IR-VORVERST. 29304-015.56
IR-PREAMPL.
PREAMPL.IR
SFH2056 D1201
10U/25V C1207
1,8K R1207
3,3K R1206
15K R1203
12,5MH L1213
2,2N C1213
2,2U 50V C1211
10U/25V C1214
680K R1202
4,7N C1201
820P C1206
BC549B T1204
180K R1201
4,7N C1204
15K R1204
TDA4050B
TDA4052
IC1211
4,7U 25V C1212
33 R1212
TD129 D802
TD129 D801
12MHZ F808
33P C808
33P C809
220U/10V C812
0,47U C813
BC548C T816
2,2N C816
10M R817
10M R816
56N C817
470K R818
470K R806
1M R808
TD129 D807
0,1U C807
220K R804
TD129 D803
470K R801
47K R807
BC558B T802
BC548B T801
100K R802
470K R803
0,1U C801
TD129 D804
1N C849
RESET-PL.29304-019.54
RESET BOARD
PIASTRA RESET
C.I. RESET
WISCHER / TEMP.CONTACT
CONTATTO TEMP.
ENTMAGNETISIERUNG / DEGAUSSING
SMAGNETIZZAZIONE / DEMAGNETISATION
L609
0,1U C609 MKS4-R 250V~
PTC R609
NF-STUFE
AF STAGE
STADIO BF
ETAGE BF
AUDIO-L
AUDIO-R
120 R843
3,3N C843
3,3N C844
120 R844
LS-LINKS
LS-LEFT
ALTOP. SINISTRA
HP GAUCH
LS-RECHTS
LS-RIGHT
ALTOP. DESTRA
HP DROIT
LL
LR
LS
Chassis
2 X 400UH
L600
220-240V~
0,15U C601 MP3 250V~
2 X 27UH
L601
0,15U C602 MP3 250V~
S601
T2,5A SI601
N
BED.-EINHEIT 29501-072.69
CONTROL UNIT
UNITA DI COMANDO
UNITE DE COMMANDE
Bedienteil
Control Unit
Sezione di Comando
Chassis

nur für:
only for:


BED.-EINSCHUB 29501-071.11
OPERATING INSERT
INSERTO COMANDI
TIROIR COMMANDES
BC327-40 T851
BC327-40 T852
BC327-40 T853
BC327-40 T854
4,7K R851
4,7K R852
4,7K R853
4,7K R854
+H
HD1131Q DP861
HD1131Q DP862
HD1105P DP863
HD1105P DP864
LGK380 P D861
LGK380 P D862
CH
S
29305-006.11
LED-PLATTE
LED BOARD
PIASTRA LED
C.I.LED
A/E
DP
+
-
P
C
>>I
ME
OO
S
TD129 D851
TD129 D852
TD129 D853
TD129 D854
1
O
<
>
2
LGK380 N D821
LGK380 N D822
LGK380 N D823
LGK380 N D824
LGK380 N D826
LGK380 N D827
2 X LYK380 N D828 D829
330 R821
330 R822
330 R823
330 R824
330 R826
330 R827
330 R828
330 R829
8 X 120 R832... R839
10K R831
100P C843
100P C846
1K R844
2,2K R843
TD129 D841
6,8K R841
2,7K R842
K7
MP
R
S
IR
N
SDA 2080-A031 (MOS)
IC850
220 R845
2,7K R846
100P C847
1K R847
1K R848
+B
TD129 D802
TD129 D801
12MHZ F808
33P C808
33P C809
220U/10V C812
0,47U C813
BC548C T816
2,2N C816
10M R817
10M R816
56N C817
470K R818
RESET-PL. 29304-019.54
RESET BOARD
PIASTRA RESET
C.I. RESET
47K R807
470K R806
1M R808
220K R804
BC558B T802
BC548B T801
TD129 D807
0,1U C807
TD129 D803
470K R801
470K R803
100K R802
0,1U C801
TD129 D804
3,9K R850
1N C849
SFH2056 D1201
10U/25V C1207
1,8K R1207
3,3K R1206
15K R1203
12,5MH L1213
2,2N C1213
2,2U 50V C1211
10U/25V C1214
680K R1202
4,7N C1201
820P C1206
BC549B T1204
180K R1201
4,7N C1204
15K R1204
TDA4050B TDA4052 IC1211
4,7U 25V C1212
33 R1212
IR-VORVERST. 29304-015.56
IR-PREAMPL.
PREAMPL. IR
WISCHER / TEMP.CONTACT
CONTATTO TEMP.
ENTMAGNETISIERUNG / DEGAUSSING
SMAGNETIZZAZIONE / DEMAGNETISATION
L609
E
0,1U C609 MKS4-R 250V~
PTC R609
2 X 400UH
L600
220-240V~
0,15U C601 MP3 250V~
S601
T2,5A SI601
2 X 27UH
L601
0,15U C602 MP3 250V~
NETZSCH.-EINHEIT 29501-073.01
MAINS SWITCH UNIT
UNITA INTERR. DI RETE
UNITE COMMUT. SECTEUR
Chassis
Chassis

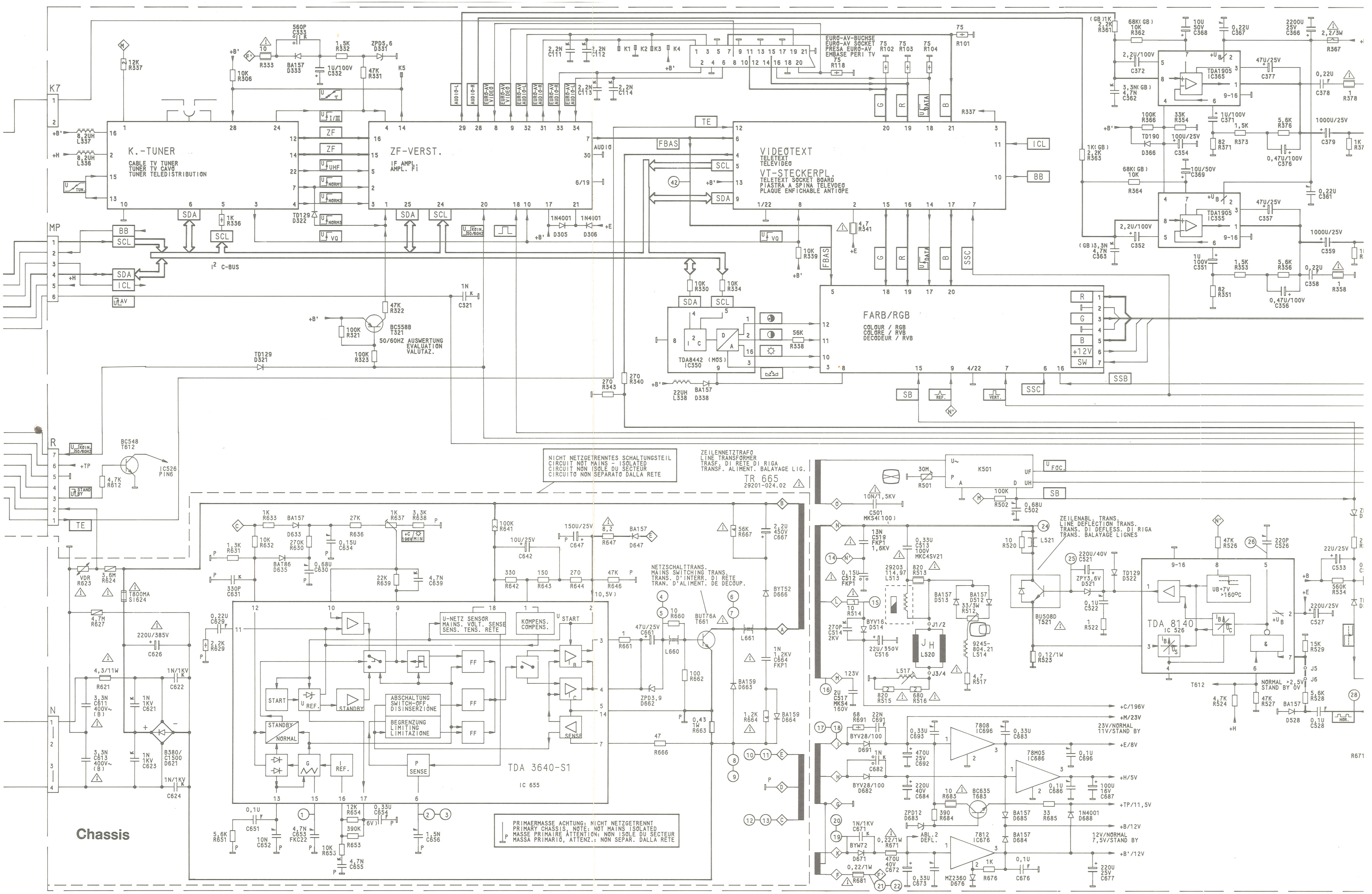
Bedienteil
Control Unit
Sezione di Comando

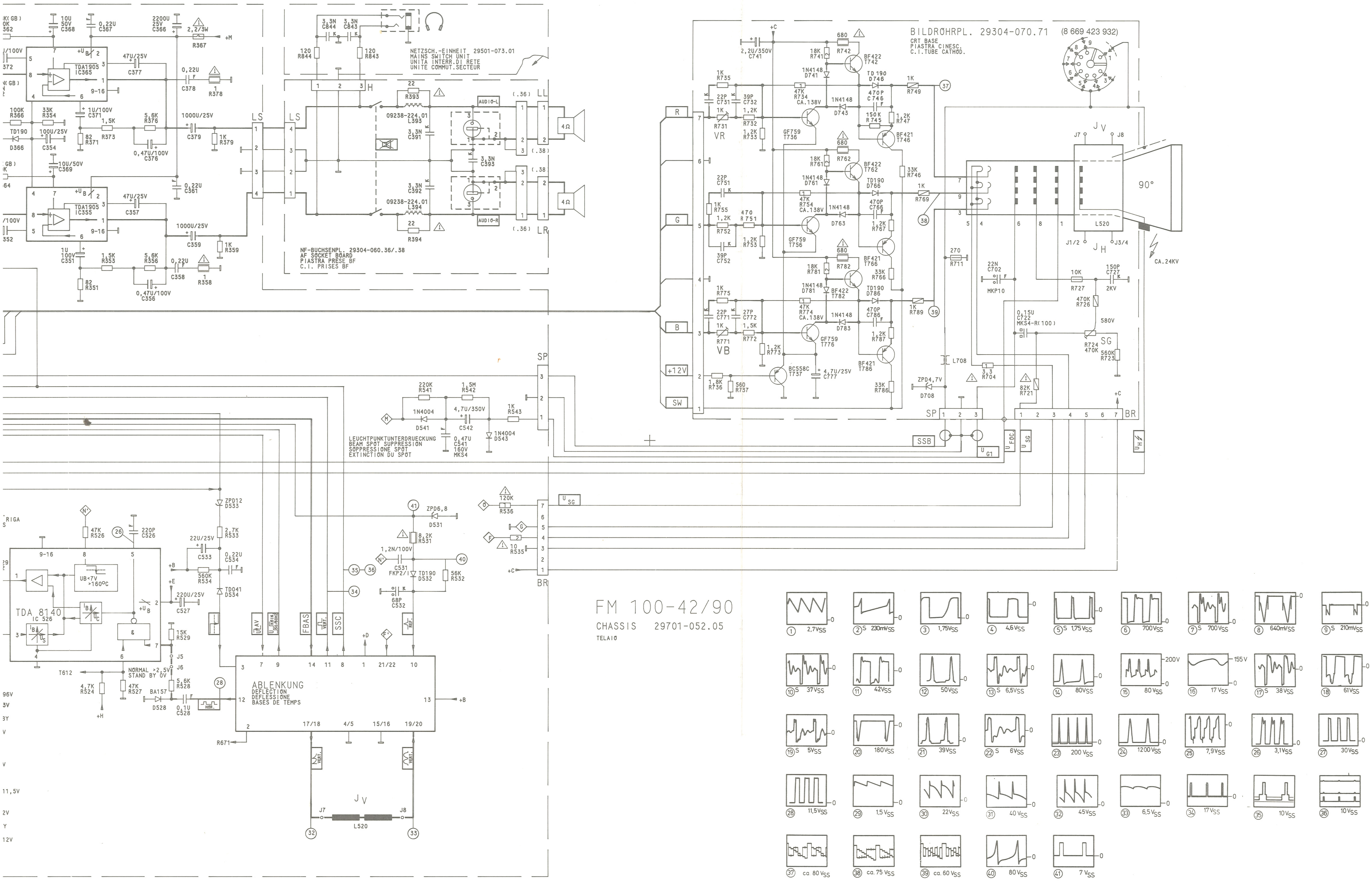

K.-TUNER
CABLE TV TUNER
TUNER TV CAVO
TUNER TELEDISTRIBUTION
ZF-VERST.
IF AMPL.
AMPL. Fi
EURO-AV-BUCHSE
EURO-AV SOCKET
PRESA EURO-AV
EMBASE PERI TV
VIDEOTEXT
TELETEXT
TELEVIDEO
VT-STECKERPL.
TELETEXT SOCKET BOARD
PIASTRA A SPINA TELEVIDEO
PLAQUE ENFICHABLE ANTIOPE
FARB/RGB
COLOUR / RGB
COLORE / RVB
DECODEUR / RVB
TDA 8442 (MOS)
IC350
I² C-BUS
SERVICE SIEHE
SERVICE SEE
SERVIZIO VEDI
SERVICE, VOIR
50/60HZ AUSWERTUNG
EVALUATION
VALUTAZ.
TDA1905
IC365
TDA1905
IC355
NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE
ZEILENNETZTRAFO
LINE TRANSFORMER
TRASF. DI RETE DI RIGA
TRANSF. ALIMENT. BALAYAGE LIG.
TR 665
29201-022.04
NETZSCHALTTRANS.
MAINS SWITCHING TRANS.
TRANS. D'INTERR. DI RETE
TRANS. D'ALIMENT. DE DECOUP.
U-NETZ SENSOR
MAINS. VOLT. SENSE
SENS. TENS. RETE
KOMPENS.
COMPENS.
START
STANDBY
NORMAL
ABSCHALTUNG
SWITCH-OFF
DISINSERZIONE
BEGRENZUNG
LIMITING
LIMITAZIONE
REF.
SENSE
TDA 3640-S1
IC 655
PRIMAERMASSE ACHTUNG: NICHT NETZGETRENNT
PRIMARY CHASSIS, NOTE: NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR
MASSA PRIMARIO, ATTENZ.: NON SEPAR. DALLA RETE
ZEILENABL. TRANS.
LINE DEFLECTION TRANS.
TRANS. DI DEFLESS. DI RIGA
TRANS. BALAYAGE LIGNES
BU903
T521
TDA 8140
IC 526
UB<7V
>160°C
TDA 8145
IC 555
7808
IC696
78M05
IC686
7812
IC676
BC635
T683
NORMAL >2,5V
STAND BY 0V
196V(25")
192V(21"/28")
23V/NORMAL
11V/STAND BY
12V/NORMAL
7,5V/STAND BY
ABL.2
DEFL.
Chassis


BILDRØHRPLATTE 29304-070.29 (8 669 423 919)
-070.37 (8 669 423 927)
CRT BASE
PIASTRA CINESC.
C.I. TUBE CATHOD.
A 51 EAK 01X 05 (21") TINTED
A 66 EAK 01X 01 (28") TINTED
A 59 EAK 01X 01 (25") TINTED
A 66 EAK 51X 01 (28"II) TINTED
NETZSCH.-EINH. 29304-065.35
MAINS SWITCH UNIT
UNITA INTERR. DI RETE
UNITE INTERR. SECTEUR
NF-BUCHSENPLATTE 29304-060.36/.38
AF SOCKET BOARD
PIASTRA PRESE BF
C.I. PRISES BF
nur/only/solo/seul.
IS 63-28 · IS 70-28
AUDIO-L
AUDIO-R
LS
LL
LR
TDA1905 IC365
TDA1905 IC355
LEUCHTPUNKTUNTERDRUECKUNG
BEAM SPOT SUPPRESSION
SOPPRESSIONE SPOT
EXTINCTION DU SPOT
R
G
B
+12V
SW
VG
VB
SG
SP
BR
SSB
110°
L520
J V
J H
1,85MH
6,5Ω
CA.25KV
8KV
ABLENKUNG
DEFLECTION
DEFLESSIONE
BASES DE TEMPS
TDA 8145
IC 555
A 8140
IC 526
UB<7V
>160°C
NORMAL >2,5V
STAND BY 0V
FBAS
SSC
(27V)
*NUR B.28"/25"
ONLY WITH
SOLO NEI
SEUL. POUR
① 2,7VSS
② S 230mVSS
③ 1,75VSS
④ 4,6VSS
⑤ S 1,75VSS
⑥ 700VSS
⑦ S 700VSS
⑧ 640mVSS
⑨ S 210mVSS
⑩ S 37VSS
⑪ 42VSS
⑫ 50VSS
⑬ S 6,5VSS
⑭ 80VSS
⑮ 80VSS
⑯ 17VSS
⑰ S 38VSS
⑱ 61VSS
⑲ S 5VSS
⑳ 180VSS
㉑ 39VSS
㉒ S 6VSS
㉓ 200VSS
㉔ 1200VSS
㉕ 7,9VSS
㉖ 3,1VSS
㉗ 30VSS
㉘ 11,5VSS
㉙ 1,5VSS
㉚ 22VSS
㉛ 40VSS
㉜ 45VSS
㉝ 6,5VSS
㉞ 17VSS
㉟ 10VSS
㊱ 10VSS
㊲ ca 80VSS
㊳ ca. 75VSS
㊴ ca. 60VSS
㊵ 80VSS
㊶ 7VSS

FM 100-42

CHASSIS	29701-048.09	(28")	IS 70-28
TELAIO	-048.14	(25")	IS 63-28
	-048.25	(21")	PS 55-28


K7
MP
R
N
K.-TUNER
CABLE TV TUNER
TUNER TV CAVO
TUNER TELEDISTRIBUTION
ZF-VERST.
IF AMPL.
AMPL. FI
AUDIO
VIDEOTEXT
TELETEXT
TELEVIDEO
VT-STECKERPL.
TELETEXT SOCKET BOARD
PIASTRA A SPINA TELEVIDEO
PLAQUE ENFICHABLE ANTIOPE
EURO-AV-BUCHSE
EURO-AV SOCKET
PRESA EURO-AV
EMBASE PERI TV
FARB/RGB
COLOUR / RGB
COLORE / RVB
DECODEUR / RVB
TDA8442 (MOS)
IC350
I² C-BUS
SDA
SCL
BB
ICL
TE
FBAS
SSC
SSB
SB
BC558B
T321
50/60HZ AUSWERTUNG
EVALUATION
VALUTAZ.
BC548
T612
IC526
PIN6
TDA1905
IC365
TDA1905
IC355
NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS - ISOLATED
CIRCUIT NON ISOLE DU SECTEUR
CIRCUITO NON SEPARATO DALLA RETE
ZEILENNETZTRAFO
LINE TRANSFORMER
TRASF. DI RETE DI RIGA
TRANSF. ALIMENT. BALAYAGE LIG.
TR 665
29201-024.02
NETZSCHALTTRANS.
MAINS SWITCHING TRANS.
TRANS. D'INTERR. DI RETE
TRAN. D'ALIMENT. DE DECOUP.
BUT76A
T661
U-NETZ SENSOR
MAINS. VOLT. SENSE
SENS. TENS. RETE
KOMPENS.
COMPENS.
START
STANDBY
NORMAL
REF.
ABSCHALTUNG
SWITCH-OFF
DISINSERZIONE
BEGRENZUNG
LIMITING
LIMITAZIONE
FF
SENSE
TDA 3640-S1
IC 655
PRIMAERMASSE ACHTUNG: NICHT NETZGETRENNT
PRIMARY CHASSIS, NOTE: NOT MAINS ISOLATED
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR
MASSA PRIMARIO, ATTENZ.: NON SEPAR. DALLA RETE
T800MA
SI624
B380/C1500
D621
K501
ZEILENABL. TRANS.
LINE DEFLECTION TRANS.
TRANS. DI DEFLESS. DI RIGA
TRANS. BALAYAGE LIGNES
BU508D
T521
TDA 8140
IC 526
UB<7V
>160°C
NORMAL >2,5V
STAND BY 0V
7808
IC696
78M05
IC686
7812
IC676
BC635
T683
ABL.2
DEFL.
+C/196V
+H/23V
23V/NORMAL
11V/STAND BY
+E/8V
+H/5V
+TP/11,5V
+B/12V
12V/NORMAL
7,5V/STAND BY
+B'/12V
L520
9245-804.21
L514
Chassis


NETZSCH.-EINHEIT 29501-073.01
MAINS SWITCH UNIT
UNITA INTERR.DI RETE
UNITE COMMUT.SECTEUR
NF-BUCHSENPL. 29304-060.36/.38
AF SOCKET BOARD
PIASTRA PRESE BF
C.I. PRISES BF
BILDRØHRPL. 29304-070.71 (8 669 423 932)
CRT BASE
PIASTRA CINESC.
C.I.TUBE CATHOD.
TDA1905 IC365
TDA1905 IC355
TDA 8140 IC 526
LEUCHTPUNKTUNTERDRUECKUNG
BEAM SPOT SUPPRESSION
SOPPRESSIONE SPOT
EXTINCTION DU SPOT
ABLENKUNG
DEFLECTION
DEFLESSIONE
BASES DE TEMPS
LS
LL
LR
SP
BR
JV
JH
L520
VR
VB
SG
SSB
CA.24KV
90°
① 2,7VSS
② S 230mVSS
③ 1,75VSS
④ 4,6VSS
⑤ S 1,75VSS
⑥ 700VSS
⑦ S 700VSS
⑧ 640mVSS
⑨ S 210mVSS
⑩ S 37VSS
⑪ 42VSS
⑫ 50VSS
⑬ S 6,5VSS
⑭ 80VSS
⑮ 80VSS
⑯ 17VSS
⑰ S 38VSS
⑱ 61VSS
⑲ S 5VSS
⑳ 180VSS
㉑ 39VSS
㉒ S 6VSS
㉓ 200VSS
㉔ 1200VSS
㉕ 7,9VSS
㉖ 3,1VSS
㉗ 30VSS
㉘ 11,5VSS
㉙ 1,5VSS
㉚ 22VSS
㉛ 40VSS
㉜ 45VSS
㉝ 6,5VSS
㉞ 17VSS
㉟ 10VSS
㊱ 10VSS
㊲ ca 80VSS
㊳ ca.75VSS
㊴ ca.60VSS
㊵ 80VSS
㊶ 7VSS

FM 100-42/90

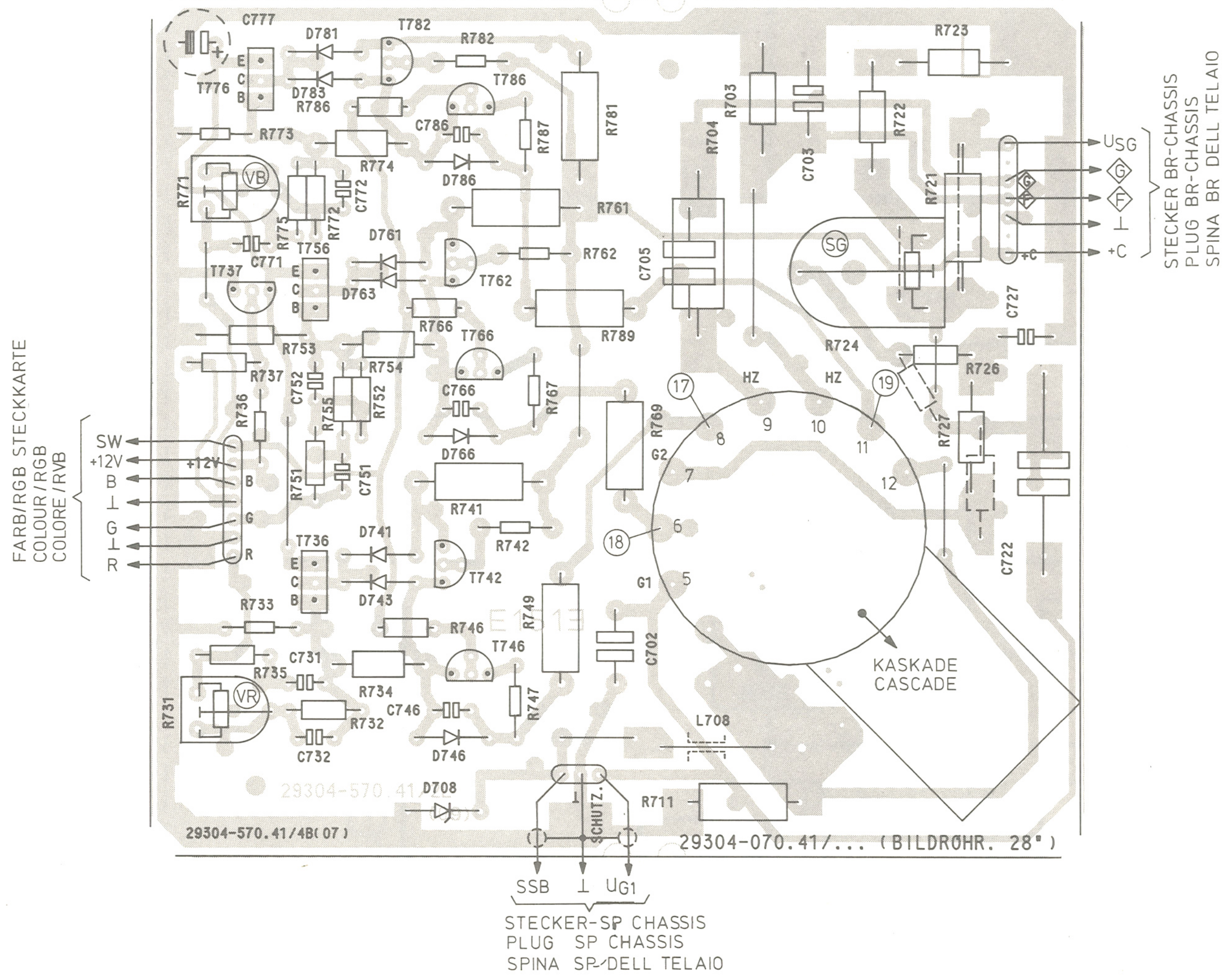
CHASSIS 29701-052.05

TELAIO

Bildrohr-Platte 8 669 423 927

Picture Tube Board

Piastra cinescope

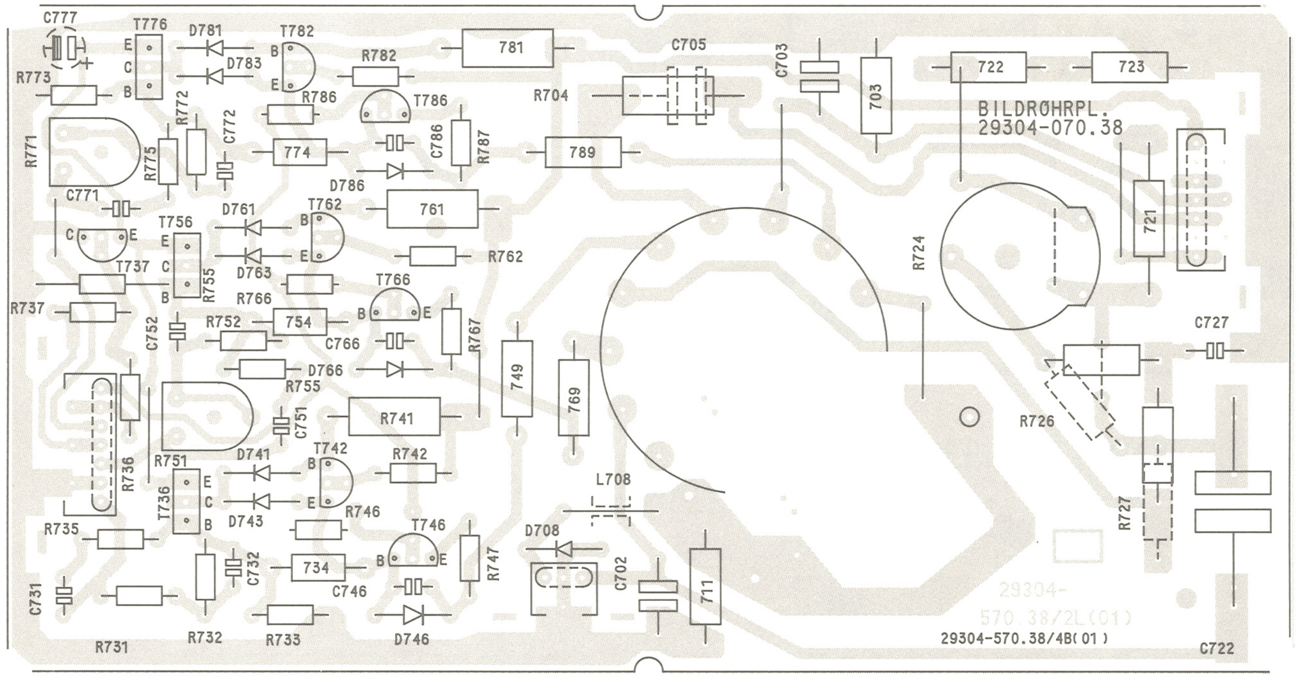


FARB/RGB STECKKARTE
COLOUR/RGB
COLORE/RVB
SW
+12V
B
G
R
STECKER BR-CHASSIS
PLUG BR-CHASSIS
SPINA BR DELL TELAIO
USG
G
F
+C
KASKADE
CASCADE
SCHUTZ.
SSB
UG1
STECKER-SP CHASSIS
PLUG SP CHASSIS
SPINA SP-DELL TELAIO
29304-570.41/4B(07)
29304-070.41/... (BILDROHR. 28")

Bildrohr-Platte 8 669 423 919

Picture Tube Board

Piastra cinescope

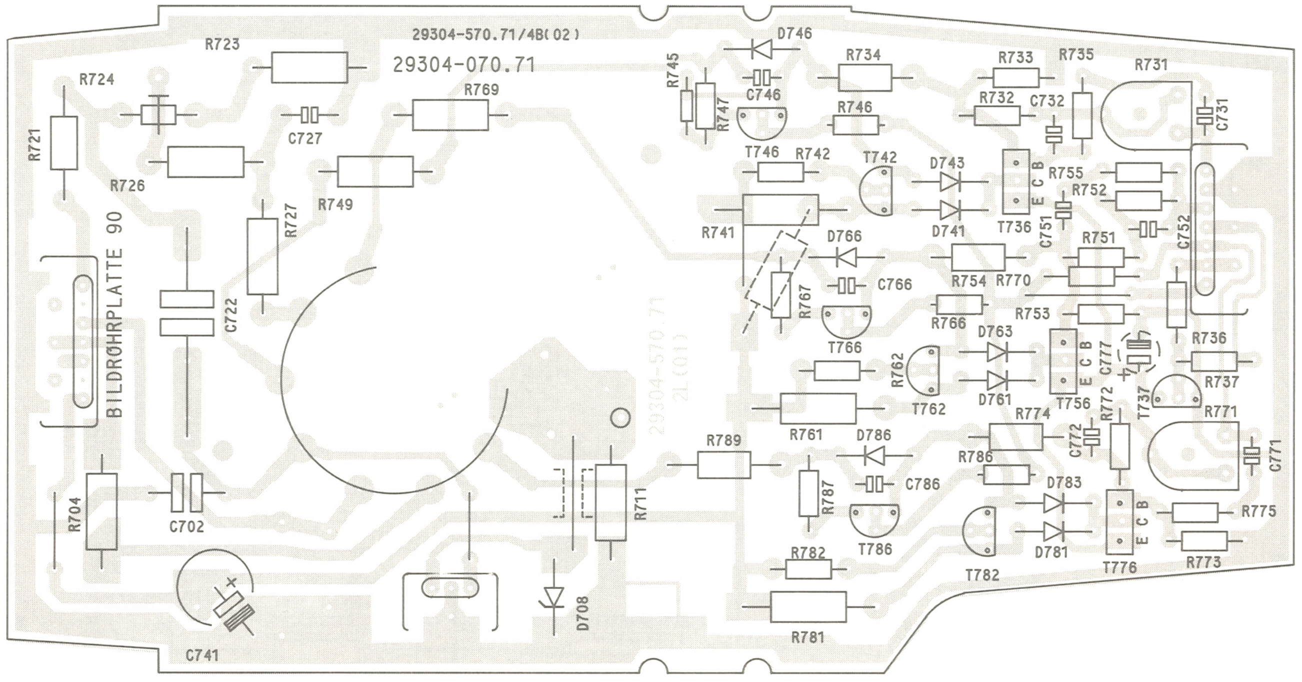


BILDROHRPL.
29304-070.38
29304-570.38/4B(01)

Bildrohr-Platte 8 669 423 932

Picture Tube Board

Piastra cinescope

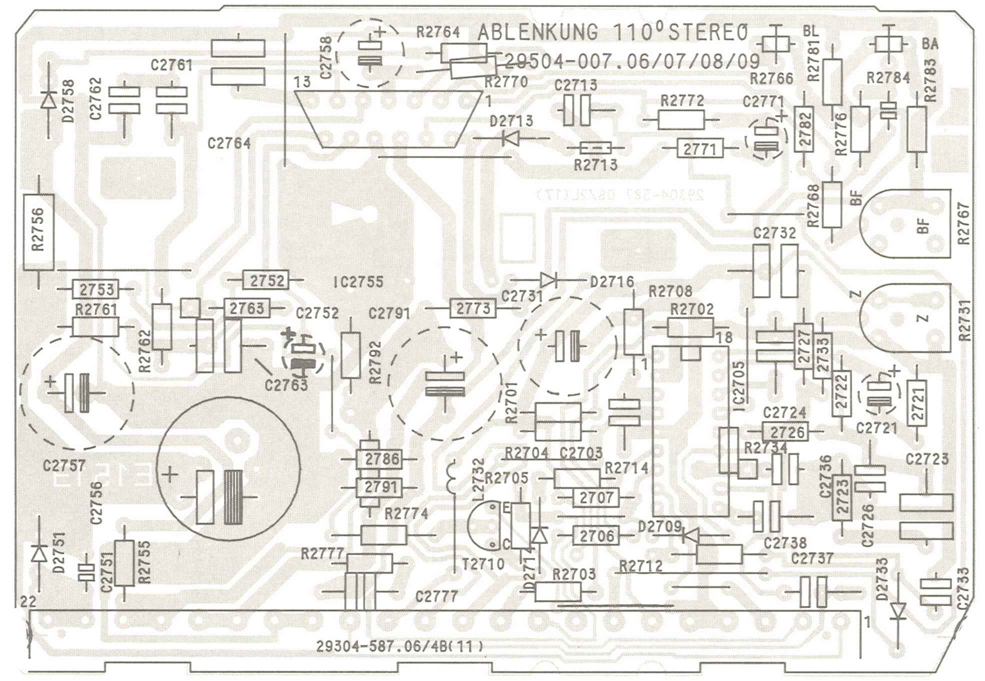


29304-570.71/4B(02)
29304-070.71
BILDROHRPLATTE 90

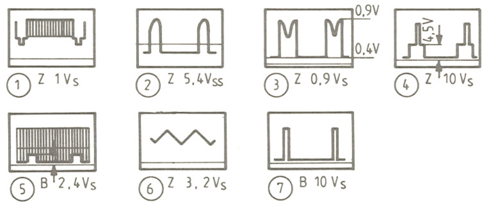
Ablenk-Modul 8 669 433 502

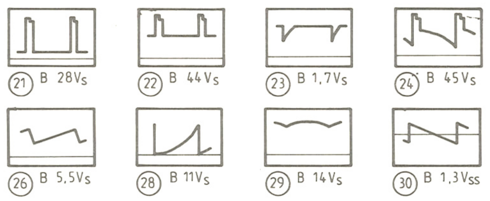
Deflection Module

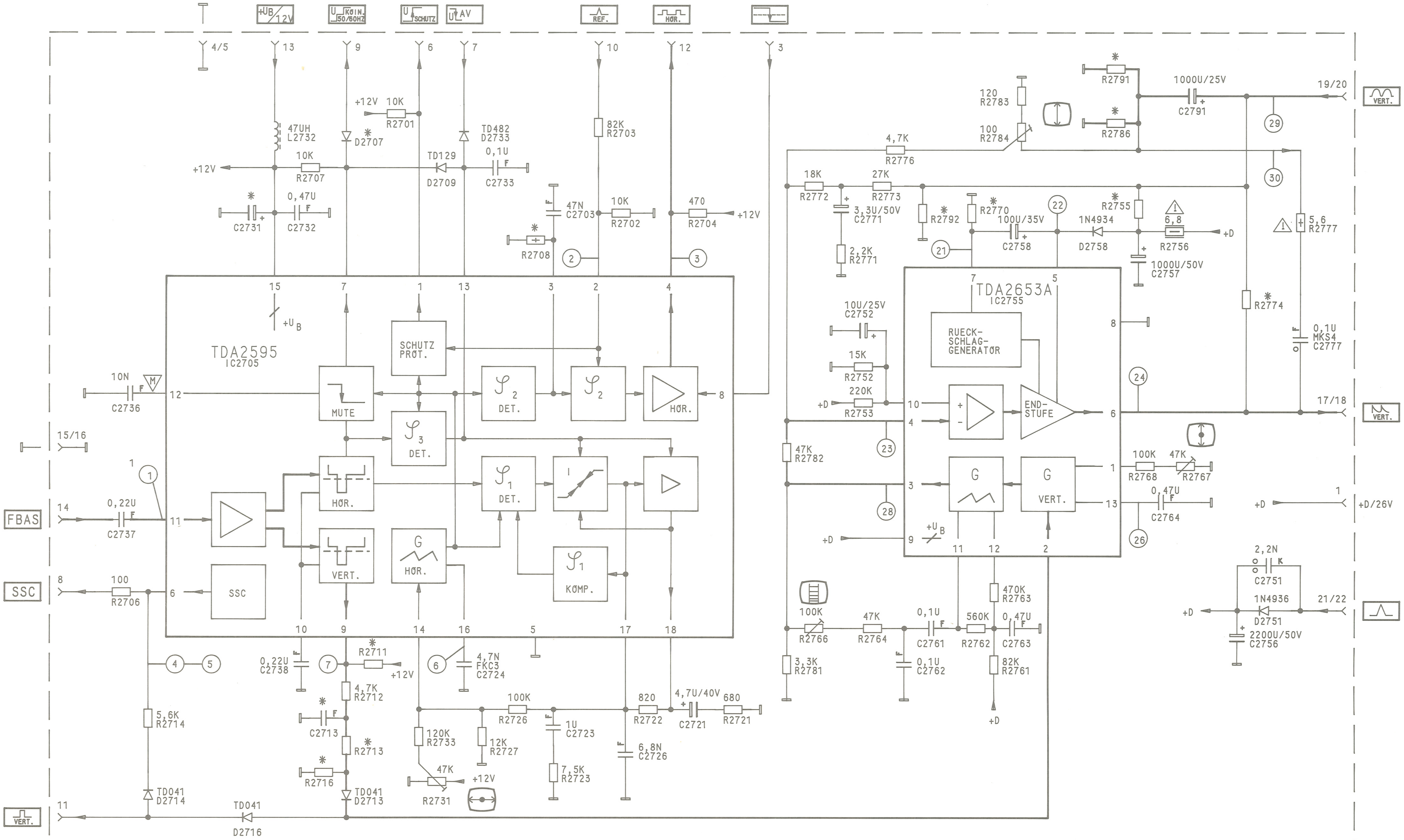
Modulo Deflessione



ABLENKUNG 110° STEREO
29504-007.06/07/08/09
IC2755
29304-587.06/4B(11)





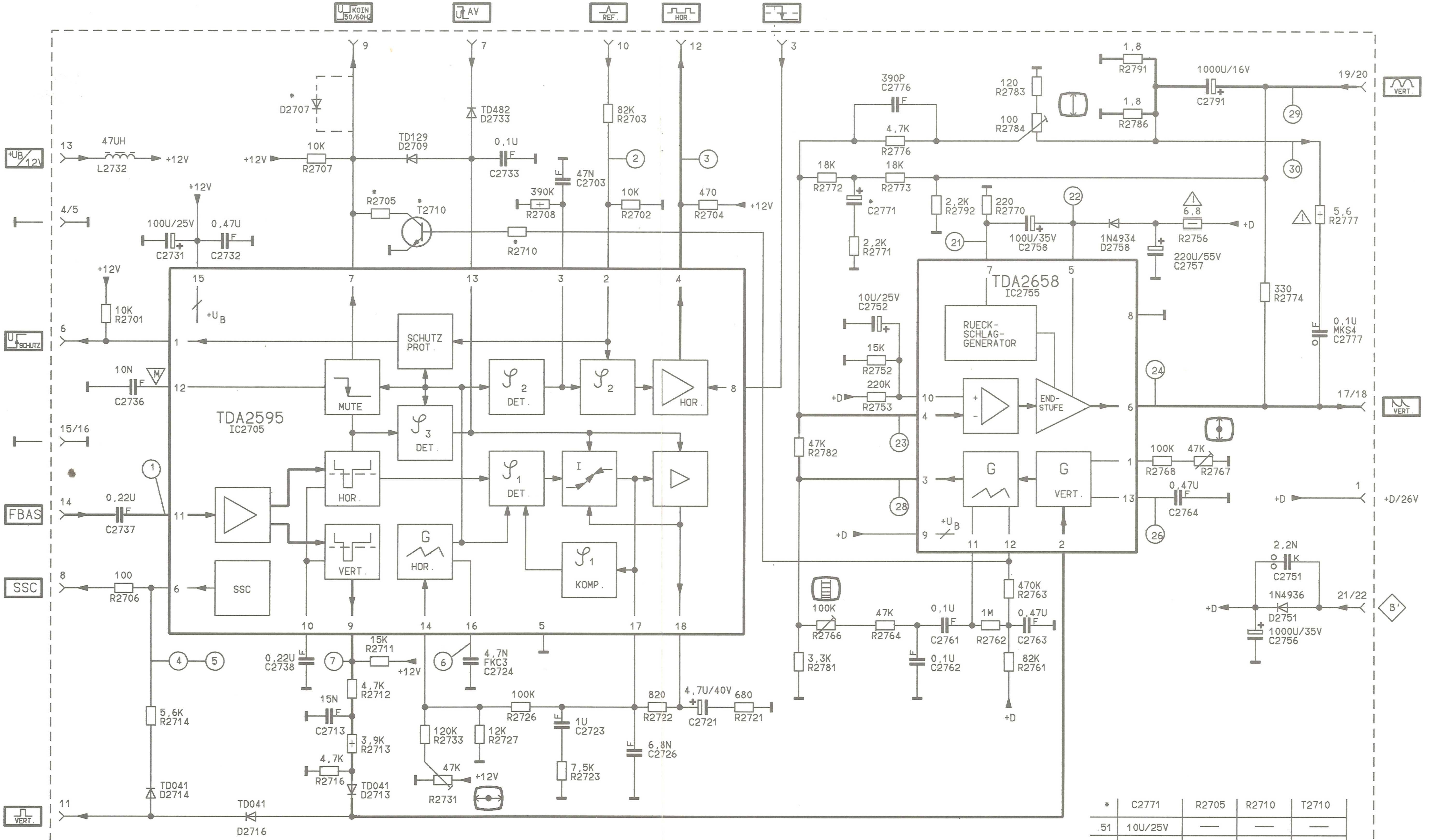

+UB/12V
UKOIN. 50/60HZ
USCHUTZ
U AV
REF.
HOR.
4/5
13
9
6
7
10
12
3
47UH L2732
+12V 10K R2701
D2707
TD482 D2733
82K R2703
10K R2707
TD129 D2709
0,1U C2733
+12V
0,47U C2732
C2731
47N C2703
10K R2702
470 R2704
R2708
TDA2595 IC2705
SCHUTZ PROT.
MUTE
DET.
HOR.
VERT.
SSC
G
KOMP.
10N C2736
15/16
FBAS
14
0,22U C2737
SSC
8
100 R2706
0,22U C2738
R2711
4,7K R2712
C2713
R2713
R2716
TD041 D2713
TD041 D2714
TD041 D2716
5,6K R2714
4,7N FKC3 C2724
100K R2726
120K R2733
12K R2727
1U C2723
7,5K R2723
47K R2731
820 R2722
4,7U/40V C2721
680 R2721
6,8N C2726
VERT.
11
R2791
1000U/25V C2791
19/20
120 R2783
100 R2784
R2786
4,7K R2776
18K R2772
27K R2773
3,3U/50V C2771
2,2K R2771
R2792
R2770
100U/35V C2758
1N4934 D2758
R2755
6,8 R2756
1000U/50V C2757
5,6 R2777
+D
TDA2653A IC2755
RUECK-SCHLAG-GENERATOR
END-STUFE
10U/25V C2752
15K R2752
220K R2753
R2774
0,1U MKS4 C2777
17/18
47K R2782
100K R2768
47K R2767
0,47U C2764
+D/26V
100K R2766
47K R2764
0,1U C2761
560K R2762
0,47U C2763
470K R2763
0,1U C2762
82K R2761
3,3K R2781
2,2N C2751
1N4936 D2751
2200U/50V C2756
21/22

ABLENKUNG 110° DEFLECTION / DEFLESSIONE

PS 55-28 · IS 63-28 · IS 70-28

29504-007.07
-007.09 (8 669 433 502)
-007.10

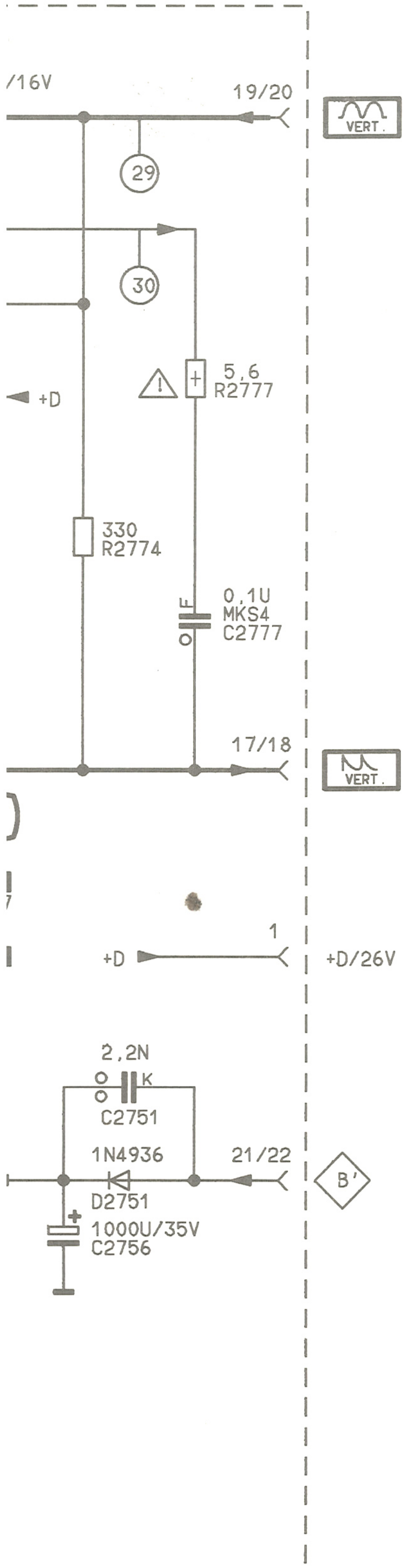
*	C2731	R2708	R2792	R2770	R2791	R2786	R2755	R2711	C2713	R2713	R2716	D2707	R2774
-007.07	100U/25V	390K	680	—	1,8	1,8	—	—	10N	●—●	—	BAT42	560
-007.09	100U/25V	220K	680	—	1,8	1,8	—	15K	15N	3,9K	4,7K	●—●	560
-007.10	1000U/25V	560K	1,8K	220	2,2	2,2	820	15K	15N	3,9K	4,7K	●—●	820


TDA2595
IC2705
TDA2658
IC2755
SCHUTZ PROT.
MUTE
HOR.
VERT.
DET.
KOMP.
SSC
RUECK-SCHLAG-GENERATOR
END-STUFE
FBAS
SSC
+UB/12V
13
47UH
L2732
+12V
4/5
15/16
14
0,22U
C2737
8
100
R2706
11
TD041
D2716
TD041
D2714
5,6K
R2714
10K
R2701
10N
C2736
100U/25V
C2731
0,47U
C2732
10K
R2707
R2705
T2710
R2710
TD129
D2709
D2707
TD482
D2733
0,1U
C2733
47N
C2703
390K
R2708
82K
R2703
10K
R2702
470
R2704
15K
R2711
4,7K
R2712
15N
C2713
3,9K
R2713
4,7K
R2716
TD041
D2713
0,22U
C2738
4,7N
FKC3
C2724
120K
R2733
47K
R2731
12K
R2727
100K
R2726
1U
C2723
7,5K
R2723
6,8N
C2726
820
R2722
4,7U/40V
C2721
680
R2721
390P
C2776
4,7K
R2776
120
R2783
100
R2784
1,8
R2791
1,8
R2786
1000U/16V
C2791
19/20
VERT.
18K
R2772
18K
R2773
C2771
2,2K
R2771
2,2K
R2792
220
R2770
100U/35V
C2758
1N4934
D2758
6,8
R2756
220U/55V
C2757
+D
5,6
R2777
330
R2774
0,1U
MKS4
C2777
10U/25V
C2752
15K
R2752
220K
R2753
47K
R2782
17/18
100K
R2768
47K
R2767
0,47U
C2764
+D/26V
2,2N
C2751
1N4936
D2751
1000U/35V
C2756
21/22
B'
100K
R2766
47K
R2764
0,1U
C2761
1M
R2762
0,47U
C2763
470K
R2763
82K
R2761
3,3K
R2781
0,1U
C2762

ABLENKUNG 90°/DEFLECTION/DEFLESSIONE **IS 55-28**

29504-007.51
.52 (8 669 433 505)
.53
.54

*	C2771	R2705	R2710	T2710
.51	10U/25V	—	—	—
.52	3,3U/25V	—	—	—
.53	10U/25V	10K	4,7M	BC548B
.54	3,3U/25V	10K	4,7M	BC548B

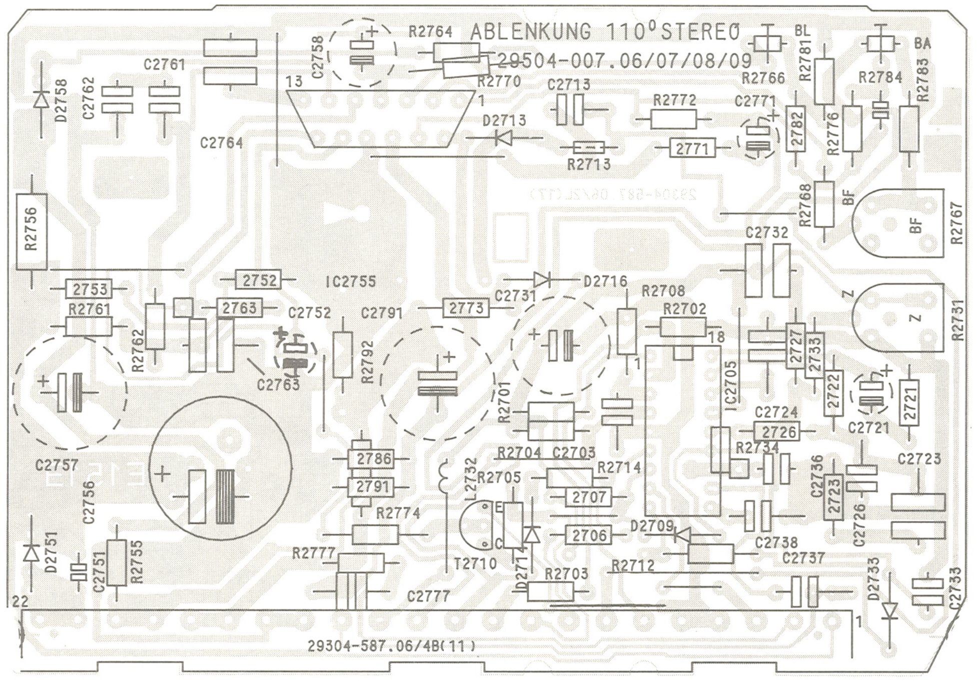

/16V
19/20
VERT.
29
30
+D
5,6
R2777
330
R2774
0,1U
MKS4
C2777
17/18
VERT.
1
+D
+D/26V
2,2N
K
C2751
1N4936
D2751
21/22
B'
1000U/35V
C2756

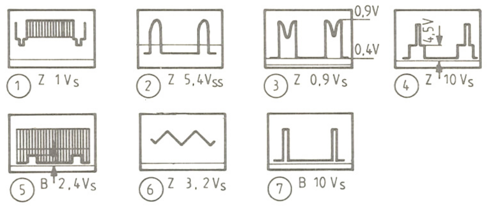
R2710	T2710
—	—
—	—
4,7M	BC548B
4,7M	BC548B

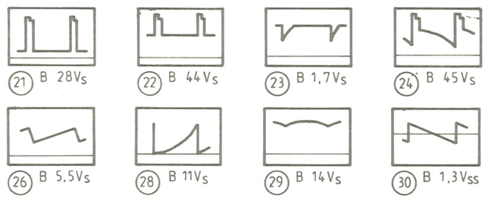
Ablenk-Modul **8 669 433 505**

Deflection Module

Modulo Deflessione

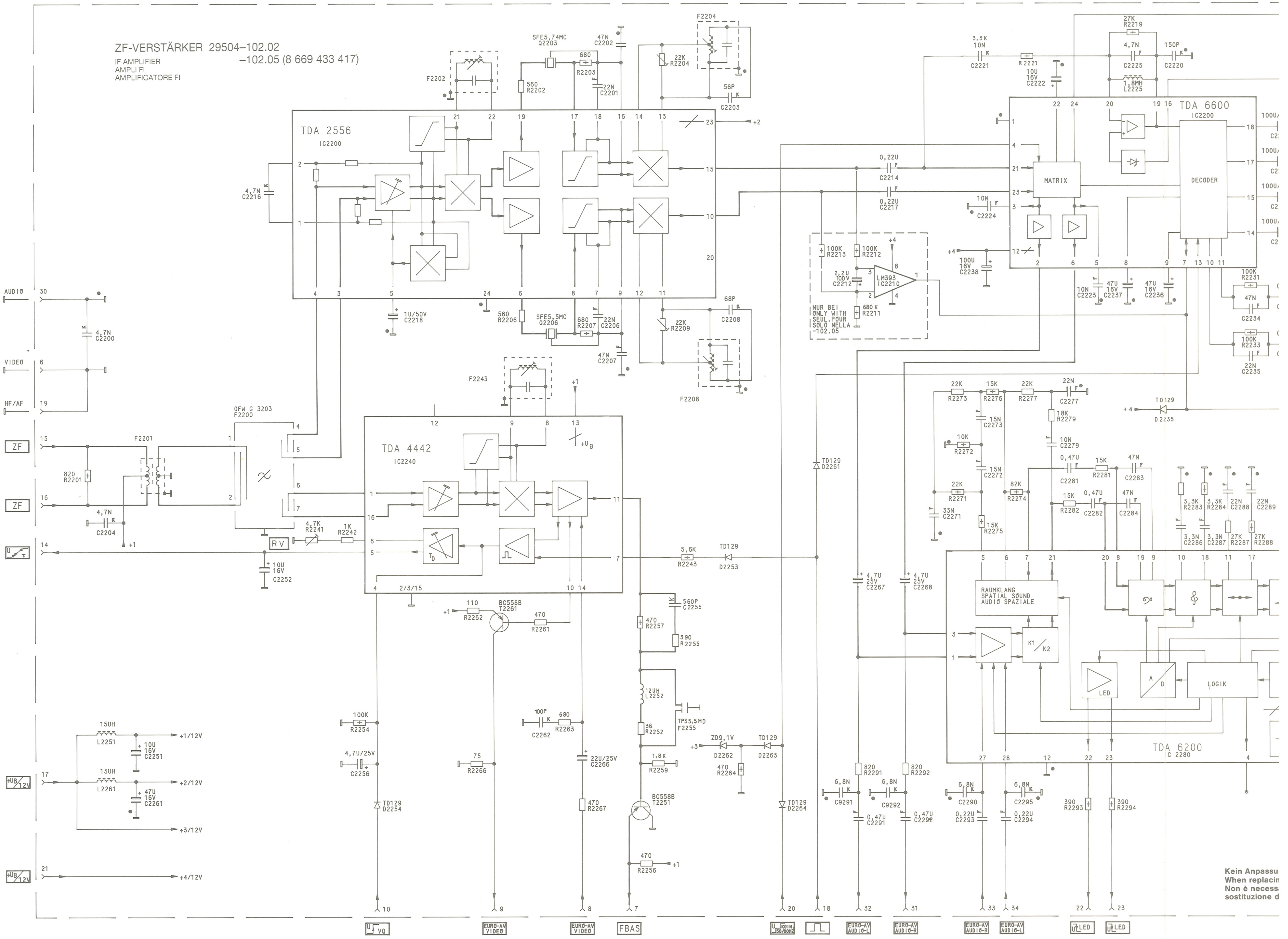

ABLENKUNG 110° STEREO
29504-007.06/07/08/09
29304-587.06/4B(11)
R2764
R2770
C2758
C2761
C2762
D2758
C2764
13
C2713
D2713
R2713
R2772
2771
C2771
R2766
R2781
2782
R2776
R2784
R2783
BL
BA
BF
R2768
R2767
C2732
Z
R2731
R2756
2753
R2761
2752
2763
IC2755
C2752
C2791
2773
C2731
D2716
R2708
R2702
18
R2762
C2763
R2792
R2701
IC2705
2727
2733
2722
2721
C2724
2726
R2734
C2721
C2723
C2757
C2756
2786
2791
R2774
L2732
R2704
C2703
R2705
R2714
2707
2706
D2709
C2736
2723
C2726
C2738
C2737
D2751
C2751
R2755
R2777
T2710
D2714
R2703
R2712
C2777
D2733
C2733
22
1


0,9V
0,4V
4,5V
① Z 1Vs
② Z 5,4Vss
③ Z 0,9Vs
④ Z 10Vs
⑤ B 2,4Vs
⑥ Z 3,2Vs
⑦ B 10Vs

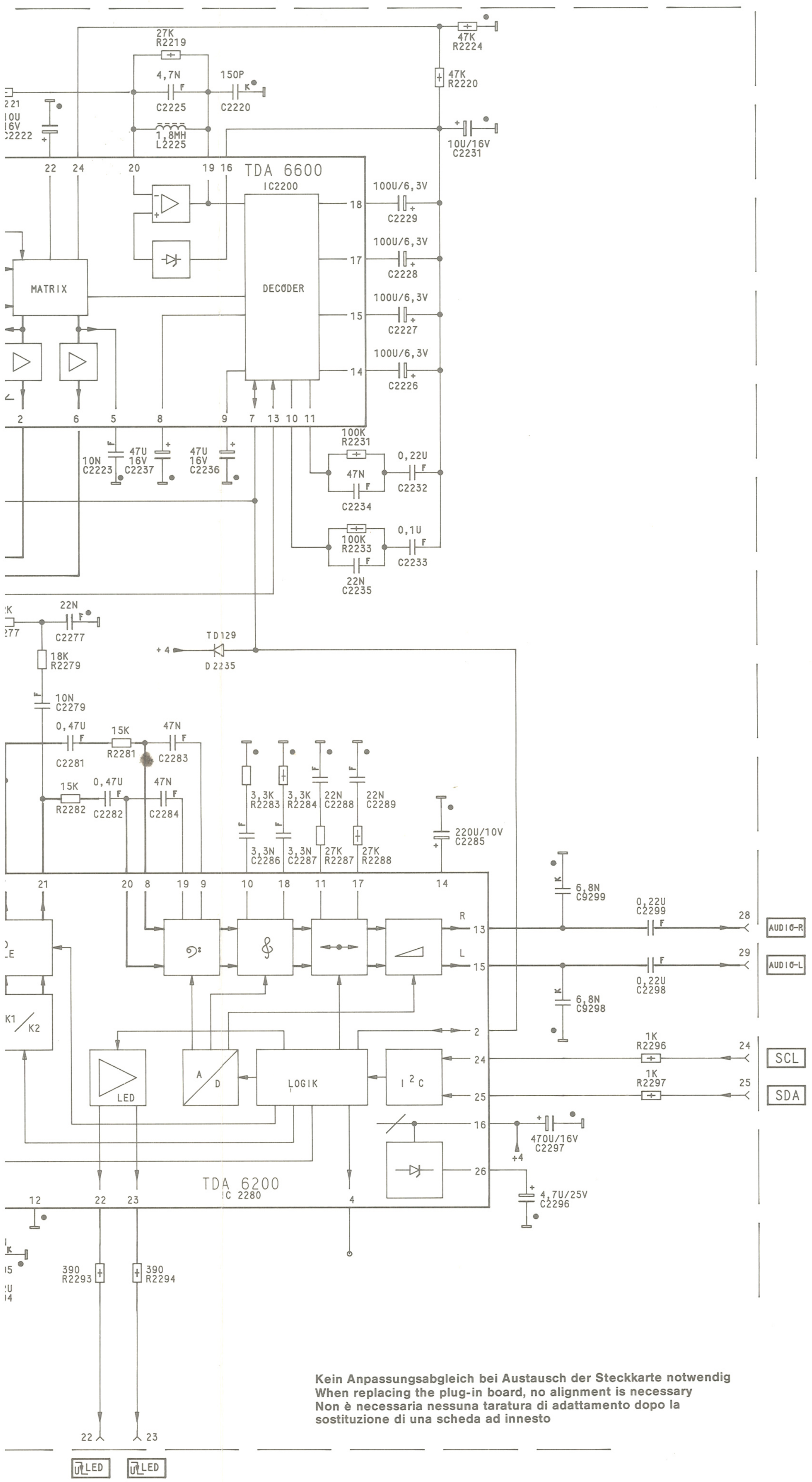

㉑ B 28Vs
㉒ B 44Vs
㉓ B 1,7Vs
㉔ B 45Vs
㉖ B 5,5Vs
㉘ B 11Vs
㉙ B 14Vs
㉚ B 1,3Vss

ZF-VERSTÄRKER 29504–102.02 –102.05 (8 669 433 417)

IF AMPLIFIER
AMPLI FI
AMPLIFICATORE FI

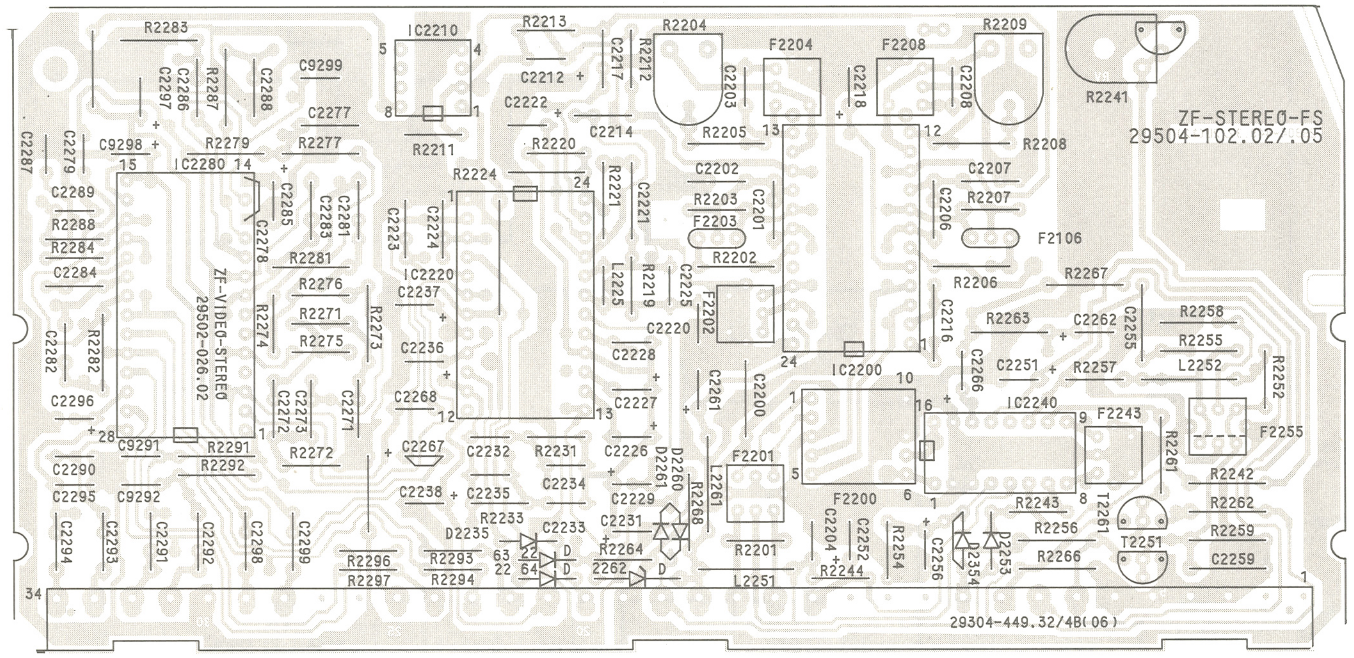

TDA 2556
IC2200
TDA 4442
IC2240
TDA 6600
IC2200
TDA 6200
IC 2280
LM393
IC2210
MATRIX
DECODER
RAUMKLANG
SPATIAL SOUND
AUDIO SPAZIALE
K1/K2
LED
A/D
LOGIK
NUR BEI
ONLY WITH
SEUL.POUR
SOLO NELLA
-102.05
AUDIO
VIDEO
HF/AF
ZF
OFW G 3203
F2200
F2201
F2202
F2204
F2208
F2243
SFE5,74MC
Q2203
SFE5,5MC
Q2206
TPS5,5MD
F2255
BC558B
T2261
BC558B
T2251
TD129
D2253
D2254
D2261
D2263
D2264
D2235
ZD9,1V
D2262
L2251
15UH
L2261
L2252
12UH
L2225
1,8MH
RV
+1/12V
+2/12V
+3/12V
+4/12V
EURO-AV VIDEO
FBAS
EURO-AV AUDIO-L
EURO-AV AUDIO-R
LED

Kein Anpassu
When replacin
Non è necess
sostituzione d

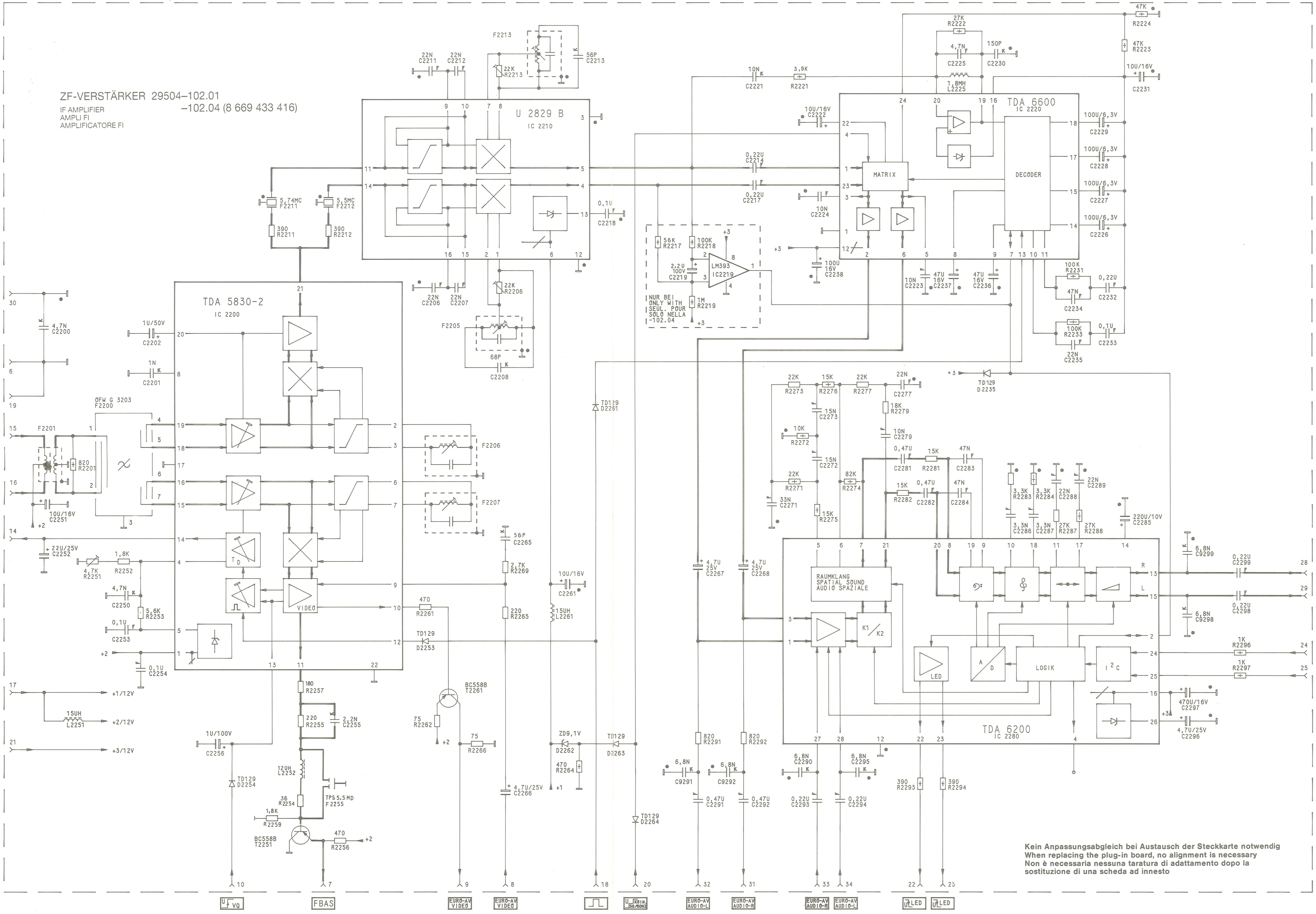

TDA 6600
IC2200
MATRIX
DECODER
27K R2219
4,7N C2225
1,8MH L2225
150P C2220
47K R2224
47K R2220
10U/16V C2231
100U/6,3V C2229
100U/6,3V C2228
100U/6,3V C2227
100U/6,3V C2226
10N C2223
47U 16V C2237
47U 16V C2236
100K R2231
47N C2234
0,22U C2232
100K R2233
22N C2235
0,1U C2233
22N C2277
18K R2279
10N C2279
TD129 D2235
0,47U C2281
15K R2281
47N C2283
15K R2282
0,47U C2282
47N C2284
3,3K R2283
3,3K R2284
22N C2288
22N C2289
3,3N C2286
3,3N C2287
27K R2287
27K R2288
220U/10V C2285
6,8N C9299
0,22U C2299
6,8N C9298
0,22U C2298
AUDIO-R
AUDIO-L
1K R2296
1K R2297
SCL
SDA
470U/16V C2297
4,7U/25V C2296
LED
A D
LOGIK
I²C
K1/K2
TDA 6200
IC 2280
390 R2293
390 R2294
LED
LED

Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

ZF-Modul 8 669 433 417
IF Module
Modulo FI


ZF-STEREO-FS
29504-102.02/.05
ZF-VIDEO-STEREO
29502-026.02
IC2210
IC2280
IC2220
IC2200
IC2240
F2204
F2208
F2106
F2201
F2200
F2243
F2255
T2251
T2261
29304-449.32/4B(06)

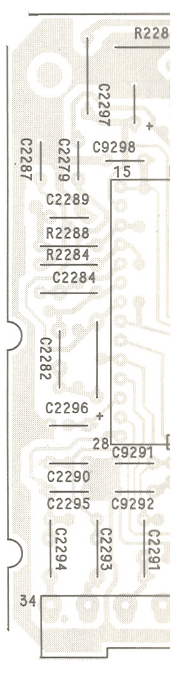
# ZF-Modul
IF Module
Modulo FI



ZF-VERSTÄRKER 29504–102.01
–102.04 (8 669 433 416)
IF AMPLIFIER
AMPLI FI
AMPLIFICATORE FI

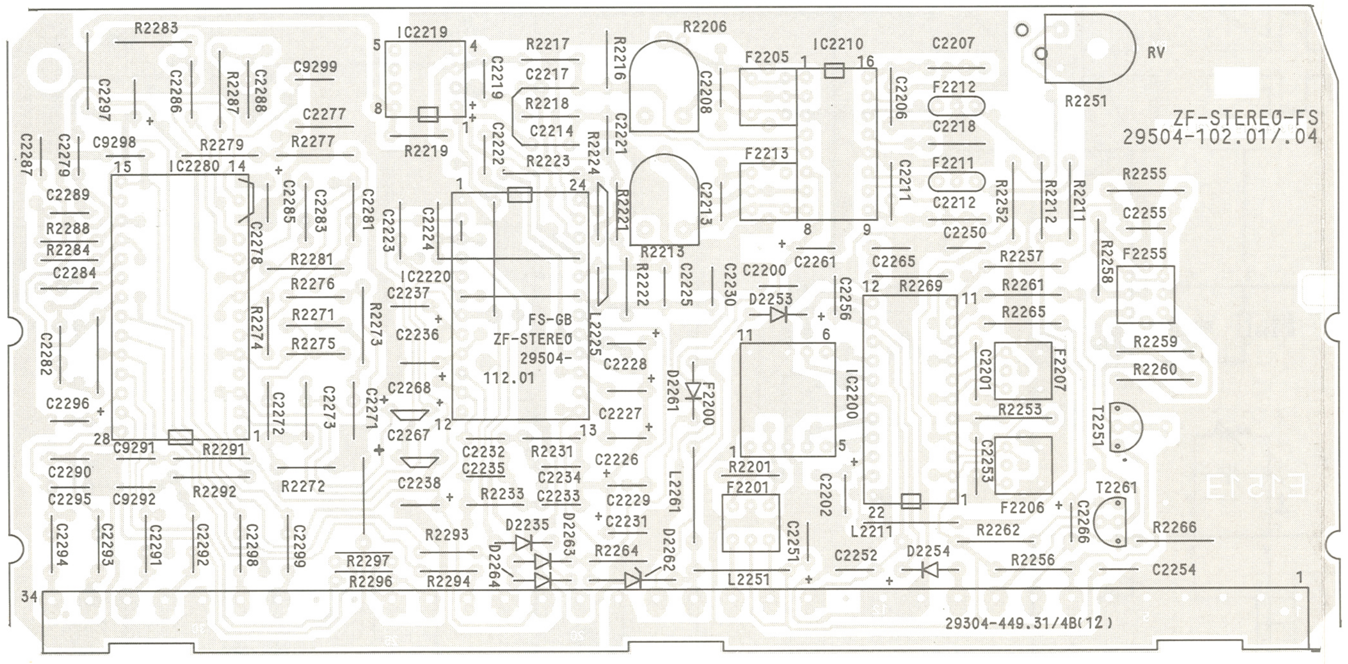
U 2829 B
IC 2210
TDA 5830-2
IC 2200
TDA 6600
IC 2220
MATRIX
DECODER
LM393
IC2219
NUR BEI
ONLY WITH
SEUL. POUR
SOLO NELLA
-102.04
TDA 6200
IC 2280
RAUMKLANG
SPATIAL SOUND
AUDIO SPAZIALE
K1 / K2
LED
A / D
LOGIK
I²C
VIDEO
OFW G 3203
F2200
F2201
F2205
F2206
F2207
F2211
F2212
F2213
5,74MC
5,5MC
TPS 5,5MD
F2255
BC558B
T2251
BC558B
T2261
TD129
D2235
D2253
D2254
D2261
D2263
D2264
ZD9,1V
D2262
AUDIO
VIDEO
HF/AF
ZF
U_B/12V
+1/12V
+2/12V
+3/12V
AUDIO-R
AUDIO-L
SCL
SDA
U_VQ
FBAS
EURO-AV VIDEO
EURO-AV AUDIO-L
EURO-AV AUDIO-R
U_LED

Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

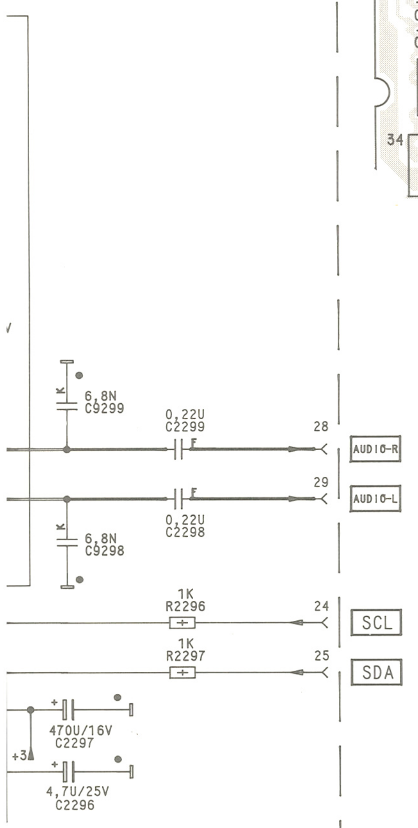


R228
C2297
C9298
C2287
C2279
15
C2289
R2288
R2284
C2284
C2282
C2296
28
C9291
C2290
C2295
C9292
C2294
C2293
C2291
34

ZF-Modul 8 619 433 416
IF Module
Modulo FI



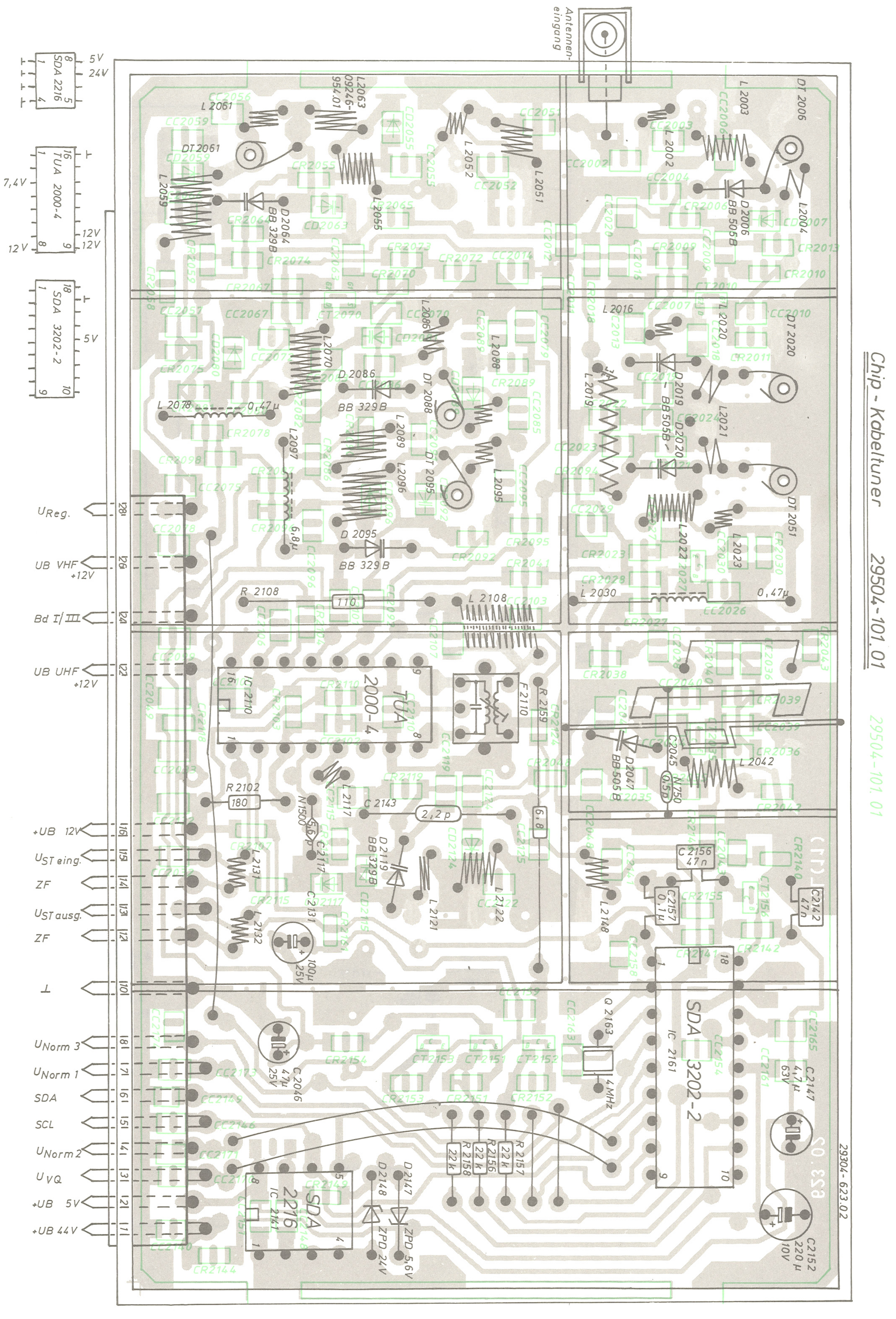
R2283
IC2219
R2217
C2217
R2218
C2214
R2219
R2223
R2206
IC2210
C2207
F2205
F2212
C2218
F2213
F2211
C2212
C2250
RV
R2251
ZF-STEREO-FS
29504-102.01/.04
C9299
C2277
R2277
C9298
IC2280
R2279
C2289
R2288
R2284
C2284
R2281
R2276
R2271
R2275
C2282
C2296
C9291
R2291
C2290
C2295
C9292
R2292
R2272
C2294
C2293
C2291
C2292
C2298
C2299
R2297
R2296
R2293
R2294
IC2220
C2237
C2236
FS-GB
ZF-STEREO
29504-
112.01
C2268
C2267
C2232
C2235
R2231
C2234
C2233
R2233
C2238
D2235
D2263
D2264
R2264
C2226
C2229
C2231
C2228
C2227
R2213
R2222
C2225
C2230
C2200
D2253
C2261
C2265
C2256
R2269
IC2200
R2257
R2261
R2265
R2255
C2255
F2255
R2258
R2259
R2260
T2251
C2201
F2207
R2253
C2253
F2206
T2261
C2266
R2266
R2201
F2201
C2202
C2251
L2211
C2252
D2254
R2262
R2256
C2254
L2251
D2261
F2200
L2261
D2262
E1513
34
1
29304-449.31/4B(12)



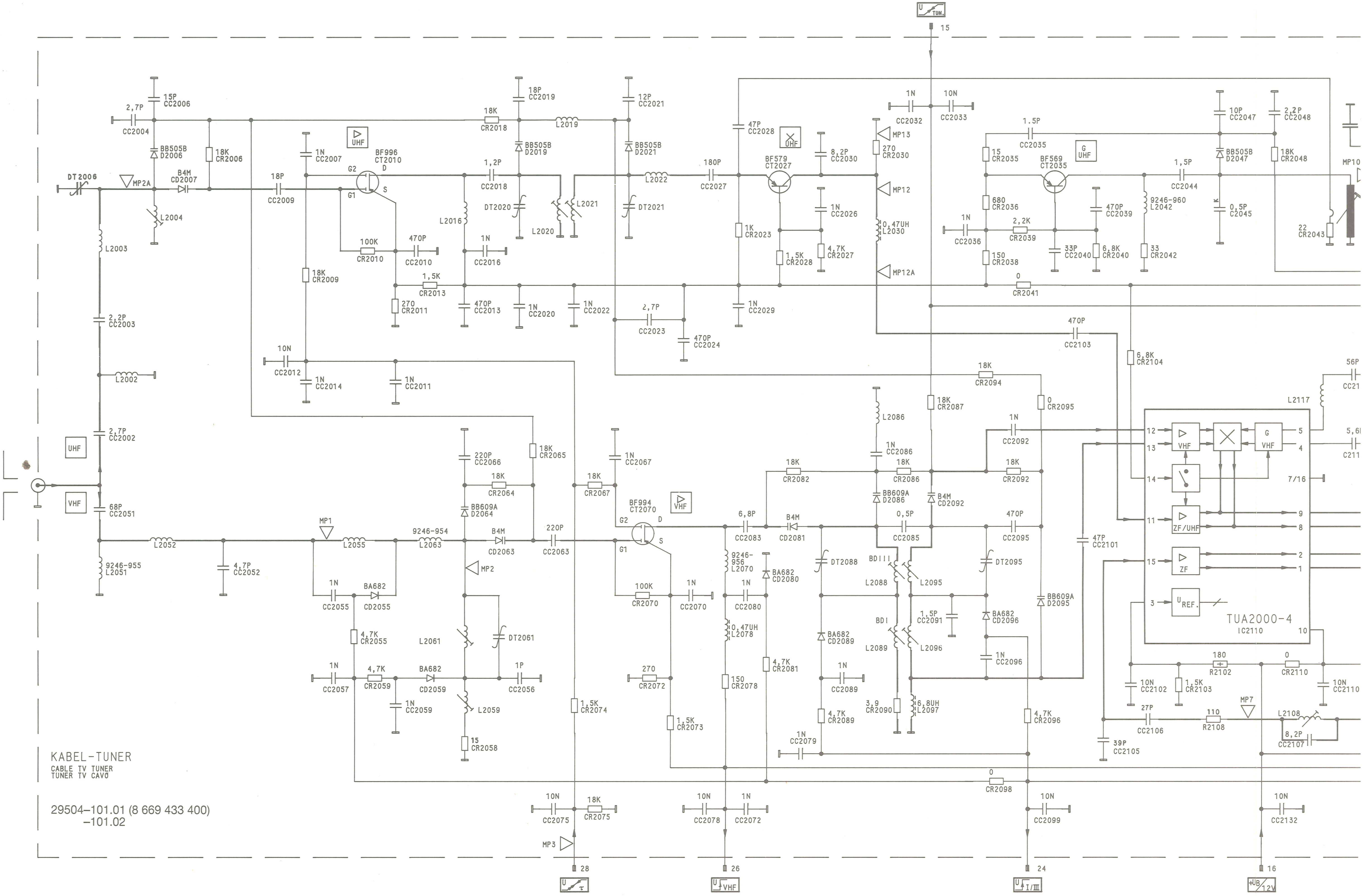
6,8N
C9299
0,22U
C2299
28
AUDIO-R
29
AUDIO-L
0,22U
C2298
6,8N
C9298
1K
R2296
24
SCL
1K
R2297
25
SDA
470U/16V
C2297
+3
4,7U/25V
C2296

ausch der Steckkarte notwendig
no alignment is necessary
di adattamento dopo la
sto

Tuner 8 669 433 400

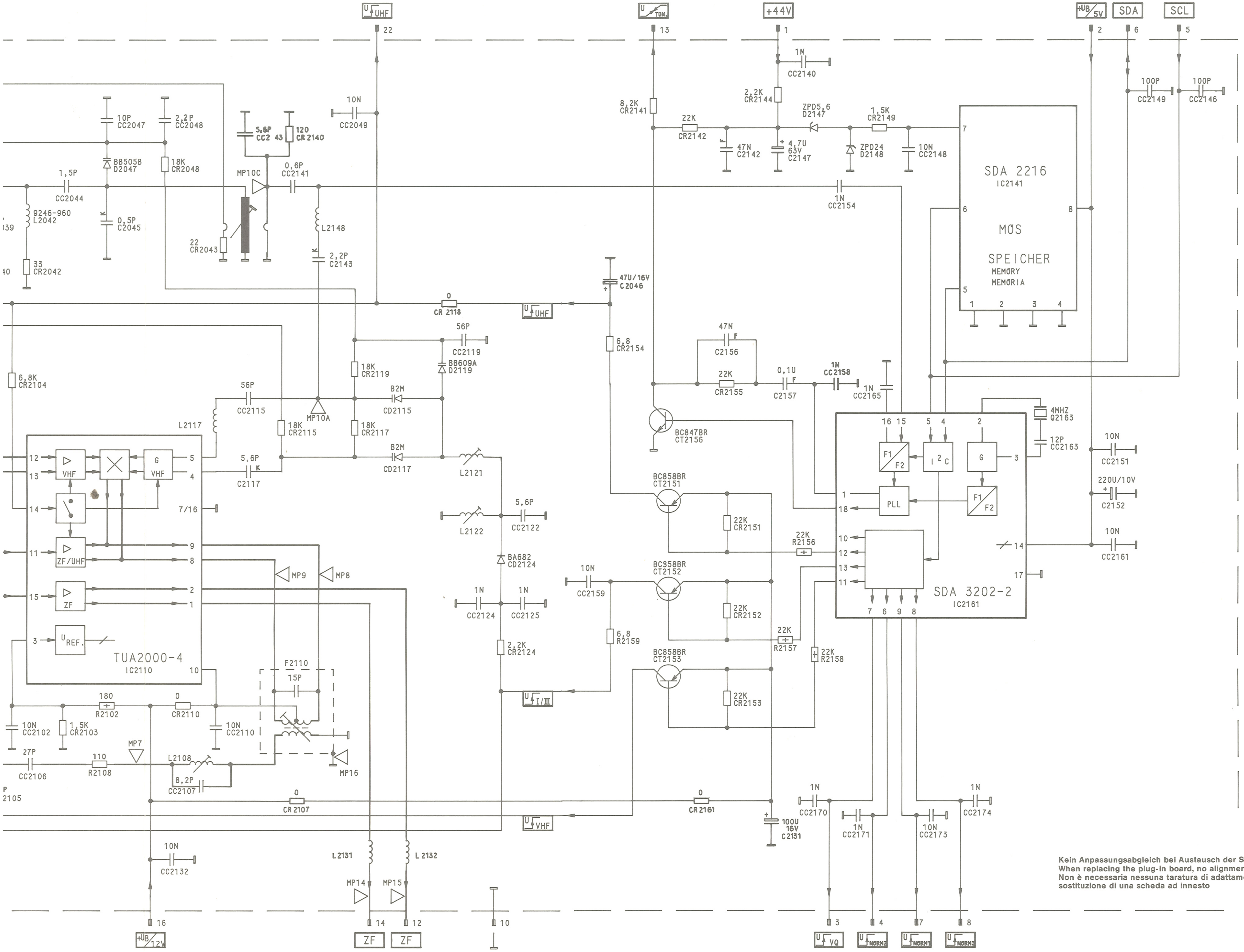


Antennen-eingang
SDA 2216
5V
24V
TUA 2000-4
7,4V
12V
12V
12V
SDA 3202-2
5V
Chip - Kabeltuner 29504-101.01
L 2061
L2063
DT 2061
L 2059
D 2064
BB 329B
L 2055
L 2052
L 2051
L 2003
DT 2006
L 2002
D 2006
BB 505B
L2004
L 2070
L 2086
D 2086
BB 329 B
DT 2088
L 2088
L 2078
0,47μ
L 2097
L 2089
L 2096
DT 2095
L 2095
D 2095
BB 329 B
6,8μ
L 2016
L 2020
DT 2020
L 2019
D 2019
BB 505B
D 2020
L2021
DT 2051
L 2022
L 2023
R 2108
110
L 2108
L 2030
0,47μ
IC 2110
TUA 2000-4
F 2110
R 2159
R 2102
180
L 2117
C 2143
2,2 p
6,8
N1500
5,6p
C 2117
D 2119
BB 329 B
L 2131
L 2121
L 2122
L 2132
C 2131
100μ 25V
D 2047
BB 505B
C 2045
N 750
L 2042
C 2156
47n
C 2157
0,1μ
C 2142
47n
L 2148
Q 2163
4MHz
IC 2161
SDA 3202-2
C 2046
4,7μ 25V
C 2147
4,7μ 63V
R 2157
R 2156
R 2158
22k
IC 2141
SDA 2216
D 2148
ZPD 24V
D 2147
ZPD 5,6V
C 2152
220μ 10V
29304-623.02
UReg.
UB VHF +12V
Bd I/III
UB UHF +12V
+UB 12V
UST eing.
ZF
UST ausg.
ZF
⊥
UNorm 3
UNorm 1
SDA
SCL
UNorm 2
UVQ
+UB 5V
+UB 44V
20
19
18
17
16
15
14
13
12
11
10
8
7
6
5
4
3
2
1

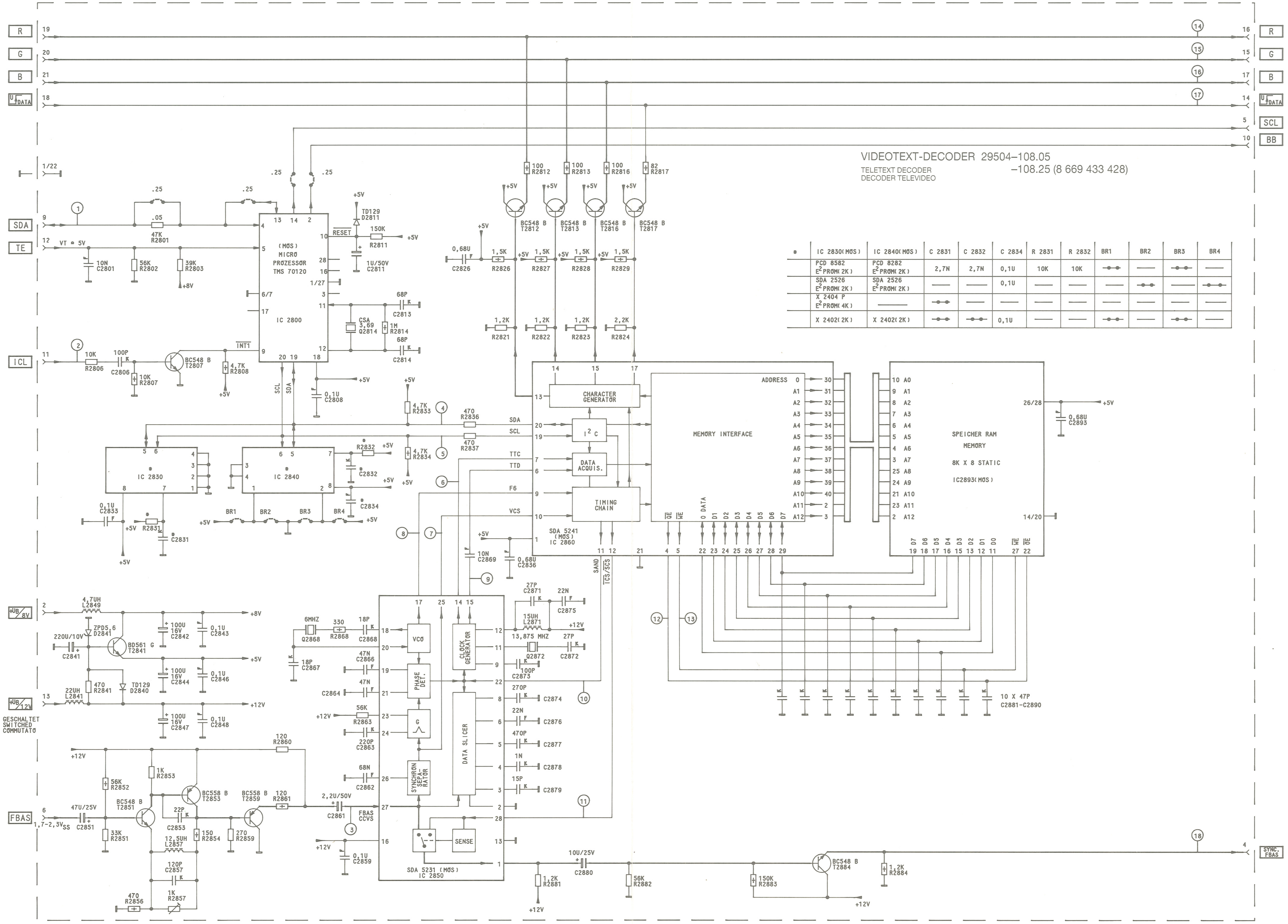

15
28
26
24
16
DT2006
MP2A
B4M
CD2007
2,7P
CC2004
15P
CC2006
BB505B
D2006
L2004
18K
CR2006
L2003
2,2P
CC2003
L2002
2,7P
CC2002
UHF
VHF
68P
CC2051
L2052
9246-955
L2051
4,7P
CC2052
18P
CC2009
1N
CC2007
BF996
CT2010
G2
G1
D
S
100K
CR2010
470P
CC2010
18K
CR2009
270
CR2011
1,5K
CR2013
10N
CC2012
1N
CC2014
1N
CC2011
18K
CR2018
18P
CC2019
BB505B
D2019
L2019
1,2P
CC2018
DT2020
L2016
L2020
L2021
1N
CC2016
470P
CC2013
1N
CC2020
1N
CC2022
12P
CC2021
BB505B
D2021
L2022
DT2021
180P
CC2027
2,7P
CC2023
470P
CC2024
47P
CC2028
1K
CR2023
1N
CC2029
BF579
CT2027
8,2P
CC2030
1N
CC2026
1,5K
CR2028
4,7K
CR2027
1N
CC2032
10N
CC2033
MP13
270
CR2030
MP12
0,47UH
L2030
MP12A
1.5P
CC2035
15
CR2035
680
CR2036
G
UHF
BF569
CT2035
1N
CC2036
2,2K
CR2039
150
CR2038
33P
CC2040
6,8K
CR2040
470P
CC2039
9246-960
L2042
33
CR2042
0
CR2041
1,5P
CC2044
10P
CC2047
BB505B
D2047
0,5P
CC2045
2,2P
CC2048
18K
CR2048
22
CR2043
MP10
470P
CC2103
6,8K
CR2104
18K
CR2094
0
CR2095
18K
CR2087
56P
L2117
MP1
L2055
9246-954
L2063
1N
CC2055
BA682
CD2055
4,7K
CR2055
L2061
DT2061
1N
CC2057
4,7K
CR2059
BA682
CD2059
1N
CC2059
L2059
15
CR2058
1P
CC2056
220P
CC2066
18K
CR2064
BB609A
D2064
MP2
B4M
CD2063
220P
CC2063
18K
CR2065
18K
CR2067
1N
CC2067
BF994
CT2070
100K
CR2070
1N
CC2070
270
CR2072
1,5K
CR2074
1,5K
CR2073
10N
CC2075
18K
CR2075
MP3
10N
CC2078
1N
CC2072
6,8P
CC2083
B4M
CD2081
9246-956
L2070
1N
CC2080
BA682
CD2080
0,47UH
L2078
150
CR2078
4,7K
CR2081
1N
CC2079
18K
CR2082
L2086
1N
CC2086
18K
CR2086
BB609A
D2086
B4M
CD2092
0,5P
CC2085
DT2088
BDIII
L2088
L2095
BDI
L2089
L2096
1,5P
CC2091
BA682
CD2089
1N
CC2089
4,7K
CR2089
3,9
CR2090
6,8UH
L2097
1N
CC2092
18K
CR2092
470P
CC2095
DT2095
BA682
CD2096
1N
CC2096
BB609A
D2095
4,7K
CR2096
0
CR2098
10N
CC2099
47P
CC2101
12
13
14
11
15
3
5
4
7/16
9
8
2
1
10
VHF
ZF/UHF
ZF
U REF.
TUA2000-4
IC2110
180
R2102
0
CR2110
10N
CC2102
1,5K
CR2103
10N
CC2110
27P
CC2106
110
R2108
MP7
L2108
8,2P
CC2107
39P
CC2105
10N
CC2132

KABEL-TUNER
CABLE TV TUNER
TUNER TV CAVO

29504-101.01 (8 669 433 400)
-101.02


U UHF
22
U TUN.
13
+44V
1
+UB 5V
2
SDA
6
SCL
5
1N
CC2140
2,2K
CR2144
ZPD5,6
D2147
1,5K
CR2149
100P
CC2149
100P
CC2146
8,2K
CR2141
22K
CR2142
47N
C2142
4,7U
63V
C2147
ZPD24
D2148
10N
CC2148
SDA 2216
IC2141
MOS
SPEICHER
MEMORY
MEMORIA
10N
CC2049
10P
CC2047
2,2P
CC2048
5,6P
CC2 43
120
CR 2140
BB505B
D2047
18K
CR2048
MP10C
0,6P
CC2141
1,5P
CC2044
9246-960
L2042
0,5P
C2045
22
CR2043
L2148
2,2P
C2143
33
CR2042
1N
CC2154
47U/16V
C2046
0
CR 2118
U UHF
56P
CC2119
BB609A
D2119
18K
CR2119
6,8K
CR2104
6,8
CR2154
47N
C2156
22K
CR2155
0,1U
C2157
1N
CC2158
1N
CC2165
4MHZ
Q2163
12P
CC2163
56P
CC2115
MP10A
B2M
CD2115
L2117
18K
CR2115
18K
CR2117
BC847BR
CT2156
5,6P
C2117
B2M
CD2117
L2121
TUA2000-4
IC2110
VHF
G
VHF
ZF/UHF
ZF
UREF
7/16
MP9
MP8
L2122
5,6P
CC2122
BA682
CD2124
1N
CC2124
1N
CC2125
2,2K
CR2124
BC858BR
CT2151
22K
CR2151
22K
R2156
10N
CC2159
BC958BR
CT2152
22K
CR2152
6,8
R2159
22K
R2157
22K
R2158
BC858BR
CT2153
22K
CR2153
U I/III
F1/F2
I2C
G
PLL
F1/F2
SDA 3202-2
IC2161
10N
CC2151
220U/10V
C2152
10N
CC2161
F2110
15P
180
R2102
0
CR2110
10N
CC2102
1,5K
CR2103
10N
CC2110
27P
CC2106
110
R2108
MP7
L2108
8,2P
CC2107
MP16
0
CR 2107
0
CR 2161
100U
16V
C2131
U VHF
1N
CC2170
1N
CC2171
10N
CC2173
1N
CC2174
10N
CC2132
L 2131
L 2132
MP14
MP15
16
14
12
10
3
4
7
8
+UB 12V
ZF
ZF
U VQ
U NORM2
U NORM1
U NORM3

Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig
When replacing the plug-in board, no alignment is necessary
Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto

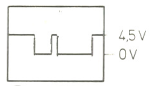

R
G
B
UF DATA
SCL
BB
SDA
TE
ICL
UB 8V
UB 12V
GESCHALTET
SWITCHED
COMMUTATO
FBAS
SYNC. FBAS
(MOS)
MICRO
PROZESSOR
TMS 70120
IC 2800
RESET
INT1
IC 2830
IC 2840
BR1
BR2
BR3
BR4
CHARACTER GENERATOR
I²C
DATA ACQUIS.
TIMING CHAIN
MEMORY INTERFACE
SDA 5241 (MOS) IC 2860
SPEICHER RAM
MEMORY
8K X 8 STATIC
IC2893(MOS)
VCO
PHASE DET.
CLOCK GENERATOR
DATA SLICER
SYNCHRON SEPARATOR
SENSE
SDA 5231 (MOS) IC 2850
BC548 B T2812
BC548 B T2813
BC548 B T2816
BC548 B T2817
BC548 B T2807
BD561 G T2841
BC548 B T2851
BC558 B T2853
BC558 B T2859
BC548 B T2884
13,875 MHZ
6MHZ
10 X 47P C2881-C2890
FBAS CCVS
1,7-2,3V SS

VIDEOTEXT-DECODER 29504–108.05

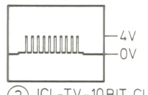
TELETEXT DECODER
DECODER TELEVIDEO

–108.25 (8 669 433 428)

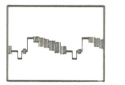
*	IC 2830(MOS)	IC 2840(MOS)	C 2831	C 2832	C 2834	R 2831	R 2832	BR1	BR2	BR3	BR4
	PCD 8582 E^2PROM(2K)	PCD 8282 E^2PROM(2K)	2,7N	2,7N	0,1U	10K	10K	●–●	—	●–●	—
	SDA 2526 E^2PROM(2K)	SDA 2526 E^2PROM(2K)	—	—	0,1U	—	—	—	●–●	—	●–●
	X 2404 P E^2PROM(4K)	—	●–●	—	—	—	—	—	—	—	—
	X 2402(2K)	X 2402(2K)	●–●	●–●	0,1U	—	—	●–●	—	●–●	—



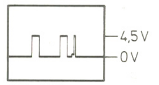
① BITFOLGE JE NACH TASTENDRUCK (BILD TASTE 1) 100 µsec/cm



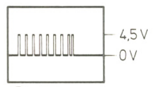
② ICL-TV-10 BIT CLOCK 100 µsec/cm



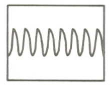
③ FBAS DC +4V AC 1,5 V_{SS} 10 µsec/cm



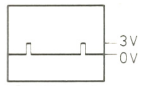
④ 100 µsec/cm



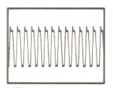
⑤ 100 µsec/cm



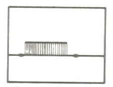
⑥ DC +4 V/AC 3 V_{SS} 6,9 MHz 100 nsec/cm



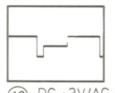
⑦ 10 µsec/cm



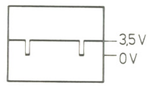
⑧ DC +6 V/AC 2 V_{SS} 6 MHz 200 nsec/cm



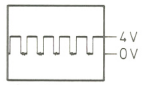
⑨ DC +4 V/AC 3 V_{SS} 10 µsec/cm



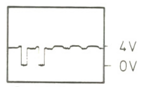
⑩ DC +3V/AC 4,5 V_{SS} 10 µsec/cm



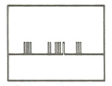
⑪ BEI TV +8V (BILD VT) 10 µsec/cm



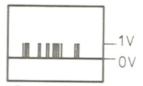
⑫ 500 nsec/cm



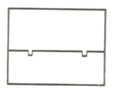
⑬ 500 nsec/cm



⑭ ⑮ ⑯ DC +1,2 V AC 0,7 V_{SS} ± 3 dB 5 µsec/cm



⑰ TV 0V / VT +1V (BILD MIX) 5 µsec/cm



⑱ SYNC VT DC +2V AC 0,4 V_{SS} 10 µsec/cm

VT-Nachrüstung und Anpassungsabgleich

Beim Nachrüsten der Videotext-Steckkarte muß die Videotext-Steckerplatte entfernt werden (* siehe Geräteschaltbild im Service Manual).

Der Einsteller R 2857 steht bei Auslieferung auf Linksanschlag (kleinste Höhenanhebung, ca. 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2857 langsam nach rechts verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da Fehlerhäufigkeit wieder zunehmen kann.

Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.

VT (GB: Teletext) instalation and matching adjustment

When fitting the Videotext (GB: Teletext) plug-in board, the Videotext plug plate has to be removed (* see circuit diagram in the Service Manual).

The control R 2857 is set in the fully anti clockwise position when the unit is delivered (smallest treble boost: approx. 2 dB). If, with a perfect aerial signal character faults occur, turn R 2857 slowly clockwise until the faults disappear. Do not turn R 2875 up any further as error rate may increase again.

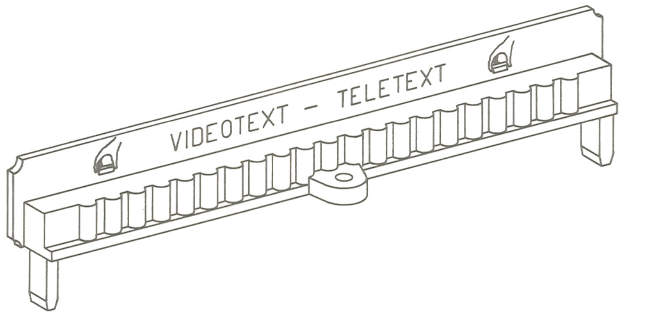
Page 199 must always be selected anew during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

Montaggio e taratura d'addatamento della scheda ad innesto

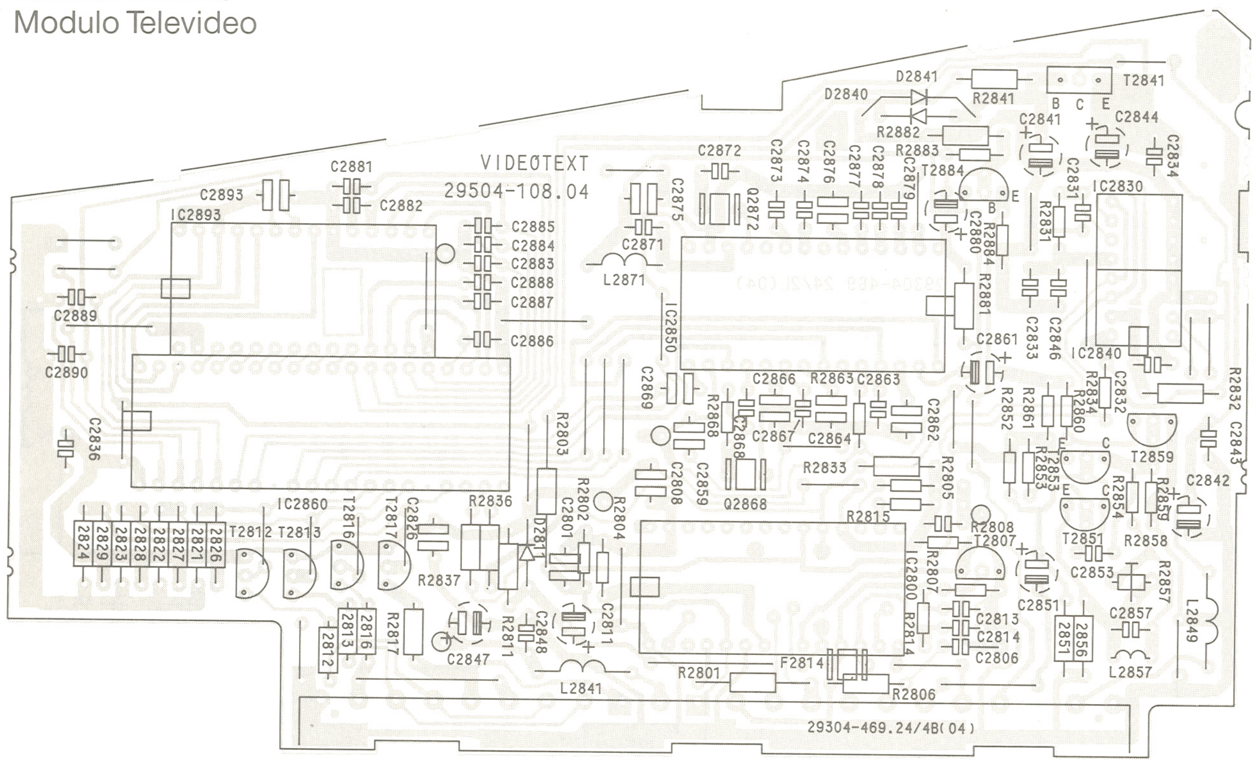
Nel montare la scheda televideo togliere la piastrina televideo (* vedere lo schema del televisore nel manuale di servizio).

Il regolatore R 2857 viene fornito col cursore girato completamente all'estrema sinistra (minima esaltazione delle alte frequenze, ca. 2 dB). Se si manifestano errori di carattere, nonostante un perfetto segnale d'antenna, girare lentamente il cursore di R 2857 verso destra fino ad eliminare gli errori. Non girarlo oltre può riaumentare la presenza degli errori.

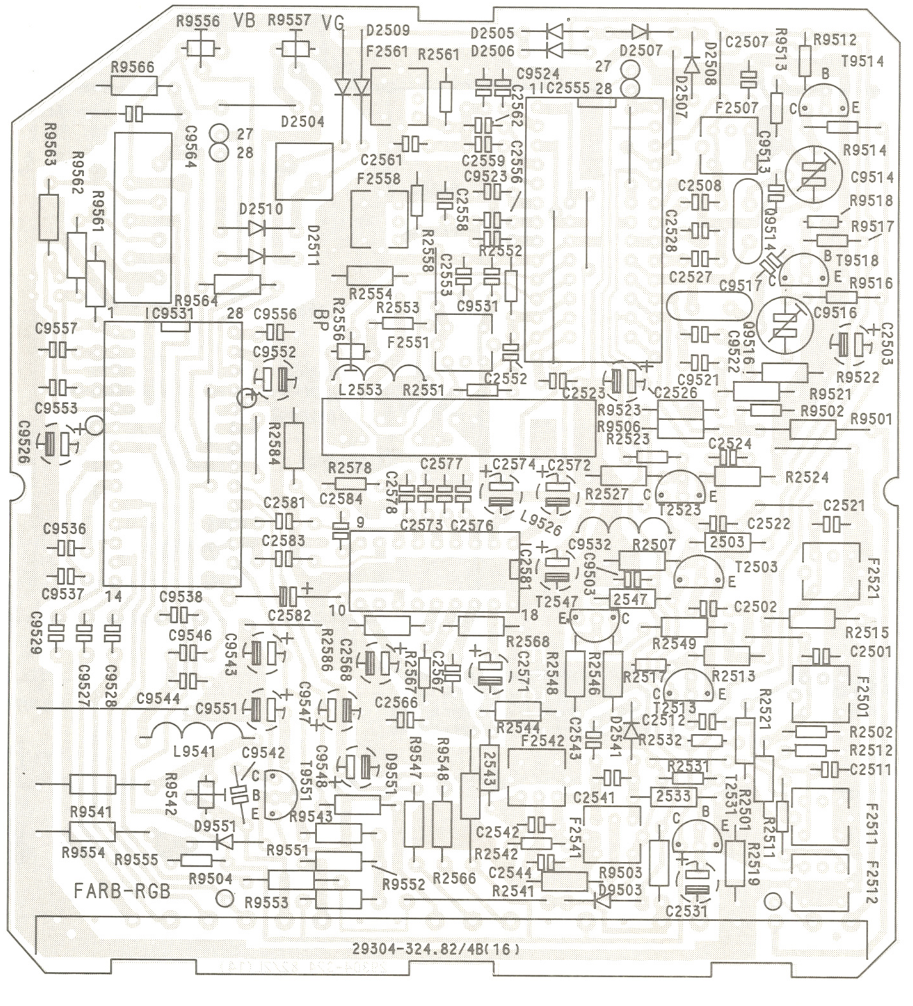
Durante la taratura è necessario selezionare ripetutamente la pagina 199, poiché solo così è possibile una nuova immissione della pagina ed una valutazione della soglia degli errori.

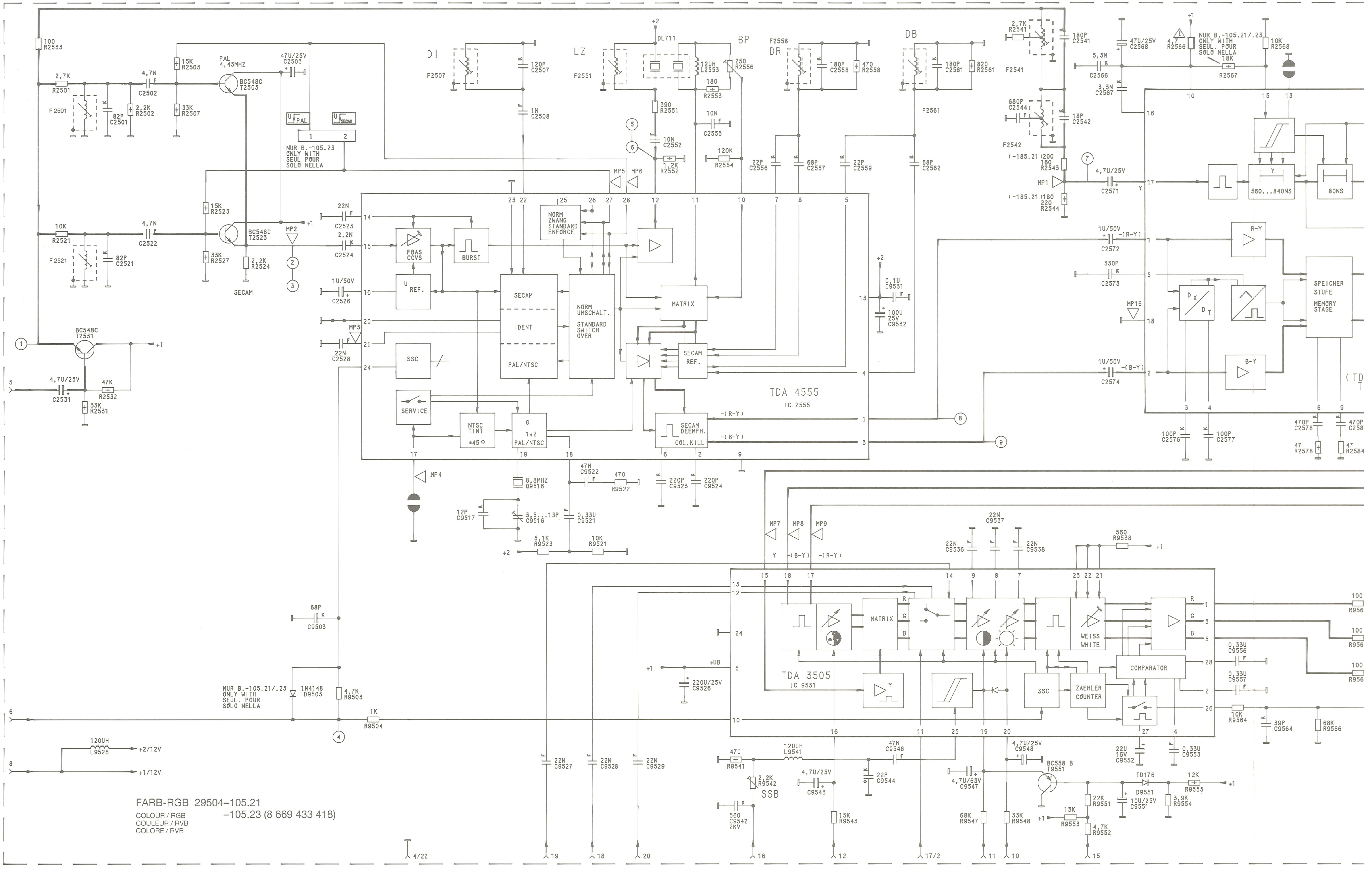


Videotext-Modul 8 669 433 428
Teletext Module
Modulo Televideo

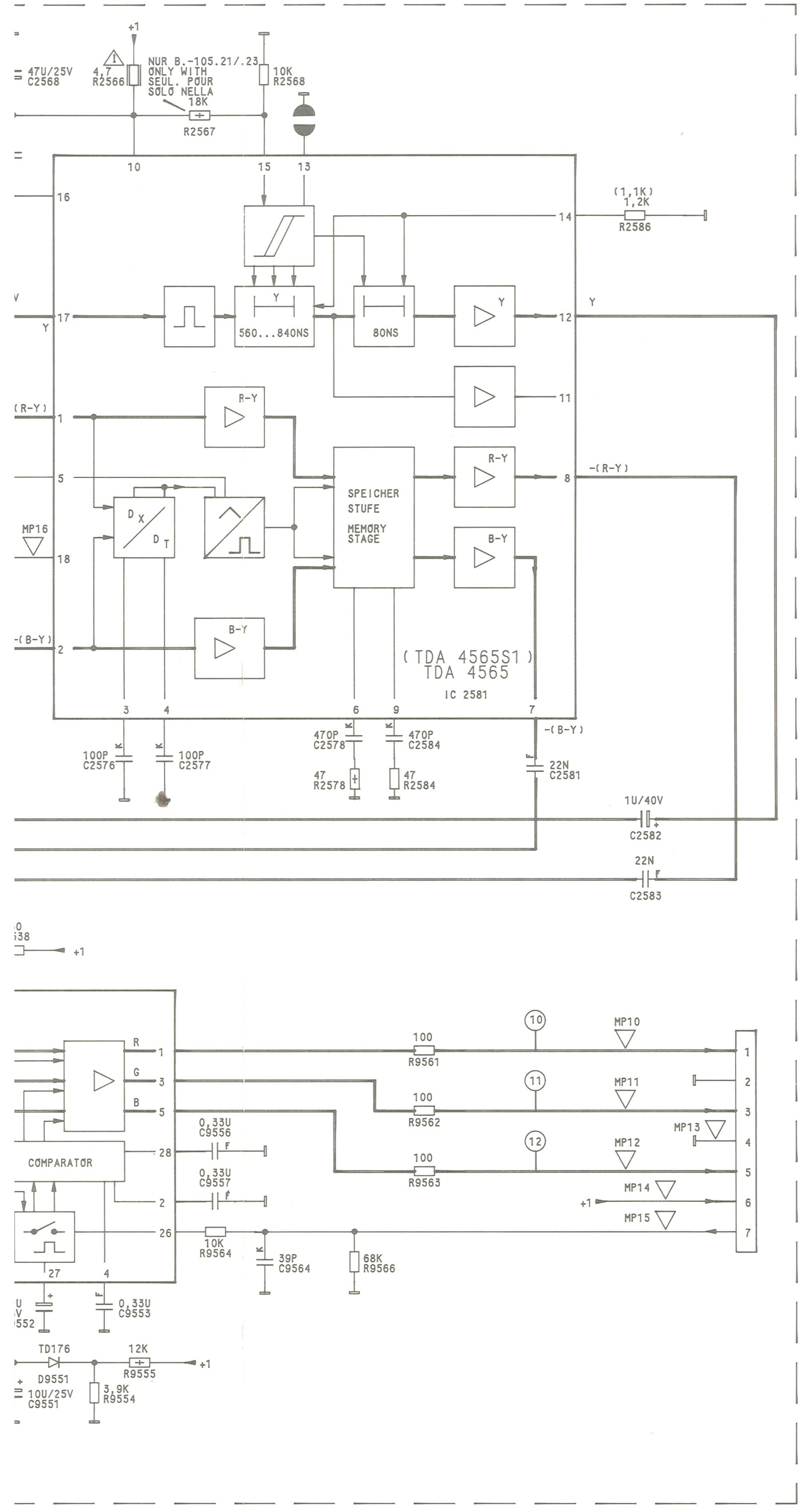


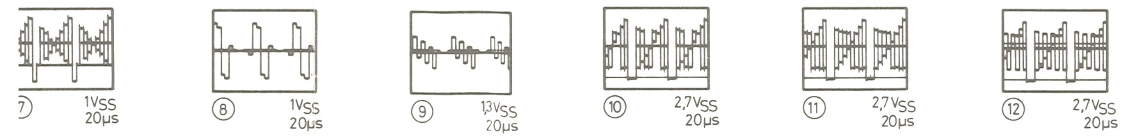
Farb/RGB-Modul 8 669 433 418
Chromal/RGB Module
Modulo Colore/RVB




FBAS
SSC
+UB/12V
100 R2533
2,7K R2501
4,7N C2502
F2501
82P C2501
2,2K R2502
15K R2503
33K R2507
PAL 4,43MHZ
BC548C T2503
47U/25V C2503
U PAL
U SECAM
NUR B.-105.23 ONLY WITH SEUL POUR SOLO NELLA
10K R2521
4,7N C2522
F2521
82P C2521
15K R2523
33K R2527
BC548C T2523
2,2K R2524
SECAM
MP2
BC548C T2531
4,7U/25V C2531
47K R2532
33K R2531
DI
F2507
120P C2507
1N C2508
LZ
F2551
DL711
12UH L2553
180 R2553
390 R2551
10N C2552
1,2K R2552
10N C2553
120K R2554
BP
250 R2556
DR
F2558
180P C2558
470 R2558
22P C2556
68P C2557
22P C2559
DB
180P C2561
820 R2561
F2561
68P C2562
MP5
MP6
22N C2523
2,2N C2524
1U/50V C2526
22N C2528
MP3
FBAS CCVS
BURST
U REF.
NORM ZWANG STANDARD ENFORCE
SECAM
IDENT
PAL/NTSC
NORM UMSCHALT. STANDARD SWITCH OVER
MATRIX
SECAM REF.
SSC
SERVICE
NTSC TINT ±45°
G 1:2 PAL/NTSC
SECAM DEEMPH. COL.KILL
TDA 4555
IC 2555
-(R-Y)
-(B-Y)
0,1U C9531
100U 25V C9532
MP4
8,8MHZ Q9516
12P C9517
3,5...13P C9516
47N C9522
470 R9522
0,33U C9521
5,1K R9523
10K R9521
220P C9523
220P C9524
68P C9503
NUR B.-105.21/.23 ONLY WITH SEUL POUR SOLO NELLA
1N4148 D9503
4,7K R9503
1K R9504
120UH L9526
+2/12V
+1/12V
2,7K R2541
180P C2541
F2541
680P C2544
18P C2542
F2542
(-185.21)200 160 R2543
(-185.21)180 220 R2544
MP1
4,7U/25V C2571
47U/25V C2568
3,3N C2566
3,3N C2567
NUR B.-105.21/.23 ONLY WITH SEUL POUR SOLO NELLA
4,7 R2566
18K R2567
10K R2568
560...840NS
80NS
1U/50V C2572
330P C2573
MP16
D X D T
SPEICHER STUFE MEMORY STAGE
R-Y
B-Y
1U/50V C2574
100P C2576
100P C2577
470P C2578
47 R2578
47 R2584
(TD
MP7
MP8
MP9
Y
-(B-Y)
-(R-Y)
22N C9536
22N C9537
22N C9538
560 R9538
MATRIX
WEISS WHITE
COMPARATOR
SSC
ZAEHLER COUNTER
TDA 3505
IC 9531
+UB
220U/25V C9526
0,33U C9556
0,33U C9557
10K R9564
39P C9564
68K R9566
100 R956
22N C9527
22N C9528
22N C9529
470 R9541
120UH L9541
2,2K R9542
SSB
560 C9542 2KV
4,7U/25V C9543
15K R9543
47N C9546
22P C9544
4,7U/63V C9547
68K R9547
4,7U/25V C9548
33K R9548
BC558 B T9551
13K R9553
22K R9551
4,7K R9552
TD176 D9551
10U/25V C9551
3,9K R9554
12K R9555
22U 16V C9552
0,33U C9553
4/22
R
G
B
SSB
U DATA
SB
① 2,4VSS 20µs
② 0,3VSS 20µs
③ 0,2VSS 20µs
④ 11VS 20µs 0V
⑤ 1,4VSS 20µs
⑥ 2VSS 20µs
⑦ 1VSS 20µs
⑧ 1VSS 20µs
⑨ 1,3VSS 20µs

FARB-RGB 29504–105.21
–105.23 (8 669 433 418)
COLOUR / RGB
COULEUR / RVB
COLORE / RVB


NUR B.-105.21/.23
ONLY WITH
SEUL. POUR
SOLO NELLA
47U/25V
C2568
4,7
R2566
18K
R2567
10K
R2568
(1,1K)
1,2K
R2586
560...840NS
80NS
SPEICHER
STUFE
MEMORY
STAGE
(TDA 4565S1)
TDA 4565
IC 2581
R-Y
B-Y
Y
-(R-Y)
-(B-Y)
MP16
470P
C2578
470P
C2584
47
R2578
47
R2584
100P
C2576
100P
C2577
22N
C2581
1U/40V
C2582
22N
C2583
COMPARATOR
R
G
B
0,33U
C9556
0,33U
C9557
10K
R9564
39P
C9564
68K
R9566
0,33U
C9553
TD176
D9551
12K
R9555
10U/25V
C9551
3,9K
R9554
100
R9561
100
R9562
100
R9563
⑩
⑪
⑫
MP10
MP11
MP12
MP13
MP14
MP15
+1
R
G
B
+12V
SW
BILDRÖHRPLATTE
CRT BASE
PIASTRA CINESCOPIO
C.I. TUBE CATHOD.



1. **Weißabgleich**
   - FuBK-Testbild einspeisen.
   - ◍ min., ☼ nom, ◑ max. einstellen.
   - Regler VG und VB (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.

2. **Sperrpunktabgleich**

   Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich).
   - FuBK-Testbild einspeisen.
   - ◍ min., ☼ nom., ◑ min., einstellen.
   - Tastkopf an den Kollektoren der Transistoren T 736, T 756, T 776 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei ca. 140-150V.

3. **Einstellungen im Farbkanal**
   - PAL-Testbild einspeisen.
   - FK nom., H nom. K max. einstellen.
   - IC-Pin 28 vom TDA 4555 mit +12V verbinden.
   - IC-Pin 17 vom TDA 4555 mit Masse verbinden.
   - Mit Trimmer C9516 die durchlaufenden Farbbalken zum Stehen bringen.
   - Kurzschlußbrücken entfernen.
   - Tastkopf an MP 12, mit Regler BP und Spule LZ die Doppelbilder des B-Signals zur Deckung bringen.
   - SECAM-Testbild einspeisen.
   - Tastkopf an Pin 1 vom TDA 4555 anschließen, mit Spule DR Nullinie des (R-Y)-Signals auf Zeilenniveau bringen.
   - Tastkopf an Pin 3 vom TDA 4555 anschließen, mit Spule DB Nullinie des (B-Y)-Signals auf Zeilentastniveau bringen.
   - Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

4. **Strahlstrom**
   - Der Regler "SSB" wird werkseitig auf Mittelwert eingestellt.
   - Sollte bei vollem Kontrast und normal eingestellter Helligkeit in Spitzenweißfeldern des Sendertestbildes eine Defokussierung (starke Unschärfe bei weißen Schriftzeichen in Bildröhrenmitte) auftreten, so muß mit Regler "SSB" auf scharfe Schriftkonturen eingestellt werden (Reduzierung des Spitzenstrahlstromes).

1. **White level adjustment**
   - Display colour bar test pattern.
   - Set ◍ to min., ☼ to nom., ◑ to max.
   - Adjust presets VG and VB (CRT socket board) so that the picture does not show any colouration.

2. **Adjustment of cut-off point**

   Manual adjustment is not possible, as the circuit board employs an automatic dark current control circuit.

   To check cut-off point (oscilloscope required), proceed as follows:
   - Display colour bar test pattern.
   - Set ◍ to min., ☼ to nom., ◑ to min.
   - Connect test probe to collectors of T 736, T 756, T 776 (CRT socket board).

     The black leves of the three cathode signals should be 140-150V.

3. **Adjustments in chroma channel**
   - Display PAL test pattern.
   - Adjust colour level and brightness to nominal value, contrast to maximum.
   - Connect pin 28 of IC TDA 4555 to +12V supply.
   - Connect pin 17 to IC TDA 4555 to chassis.
   - Adjust trimmer C9516 for stationary pattern in colour bars.
   - Remove wire links.
   - Connect test probe to test point MP 12. LBring the double image produced by the B-signal to coincidence by adjusting the preset BP and the coil LZ.
   - Display SECAM test pattern.
   - Connect test probe to pin 1 of IC TDA 4555.
   - Use coil DR to align zero level of the (R-Y) signal with the line black level.
   - Connect test probe to pin 3 of IC TDA 4555.
   - Use coil DB to align zero level of the (B-Y) signal with the line black level.
   - Adjust coil F2521 so that the (B-Y) signal is free of overshooting.

4. **Beam current**
   - During manufacture the control "SSB" is adjusted to middle value.
   - If during max. contrast and normal brightness adjustment the peak-white fields of the test picture should be defocused (in the middle of the screen white letters are very distorted) the contours of the letters must be adjusted using control "SSB" (reducing the peak beam current).

1. **Taratura del bianco**
   - Applicare un monoscopio FuBK.
   - Regolare ◍ al minimo, ☼ sul valore nominale e ◑ al massimo.
   - Con i regolatori VG e VB (piastra cinescopio) eliminare eventuali macchie di colore.

2. **Taratura del punto di blocco**

   Una regolazione manuale non è possibile, poiché questa scheda incorpora una regolazione automatica della corrente d'interdizione.

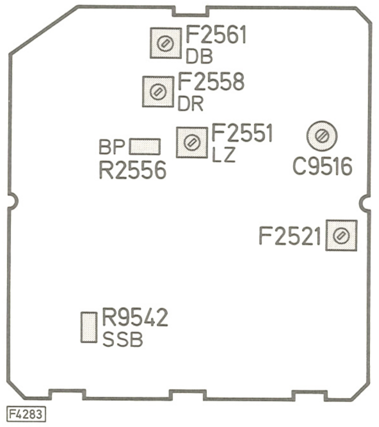
   Controllo del punto di blocco (é necessario un oscilloscopio):
   - Applicare un monoscopio FuBK.
   - Regolare ◍ al minimo, ☼ sul valore nominale e ◑ al minimo.
   - Collegare la sonda ai collettori dei transistori T 736, T 756, T 776 (piastra cinescopio).

     Valore nero dei tre segnali catodici ca. 140-150V.

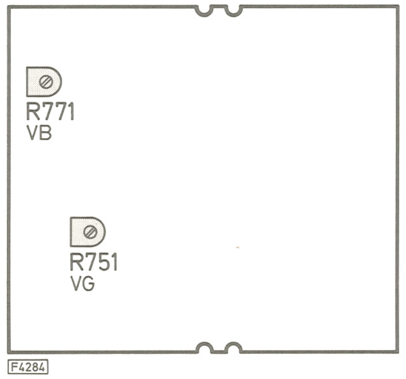
3. **Regolazione del canale colore**
   - Applicare un monoscopio PAL.
   - Regolare FK e H sul valore nominale, K al massimo.
   - Sull'integrato TDA 4555 collegare pin 28 a +12V.
   - Sull'integrato TDA 4555 collegare pin 17 a massa.
   - Con C9516 fermare le barre colorate scorrevoli.
   - Togliere i cortocircuiti.
   - Collegare la sonda a MP 12, con il regolatore BP e la bobina LZ portare a copertura le immagini doppie del segnale B.
   - Applicare un monoscopio SECAM.
   - Collegare la sonda al pin 1 dell'integrato TDA 4555, con la bobina DR portare la linea zero del segnale (R-Y) sul livello della frequenza di riga.
   - Collegare la sonda al pin 3 dell'integrato TDA 4555, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
   - La bobina F2581 applicarla così in modo che il segnale (B-Y) sia chiaro.

4. **Corrente catodica**
   - Il regolatore "SSB" viene regolato già in fabbrica su valori medi.
   - Se con il contrasto al massimo ed una regolazione normale della luminosità dovesse presentarsi una sfocalizzazione nei campi ultrabianchi del cinescopio (le lettere bianche al centro del cinescopio risultano molto sfuocate), agire sul regolatore "SSB" per mettere a fuoco i contorni delle lettere (riducendo la corrente catodica di picco).

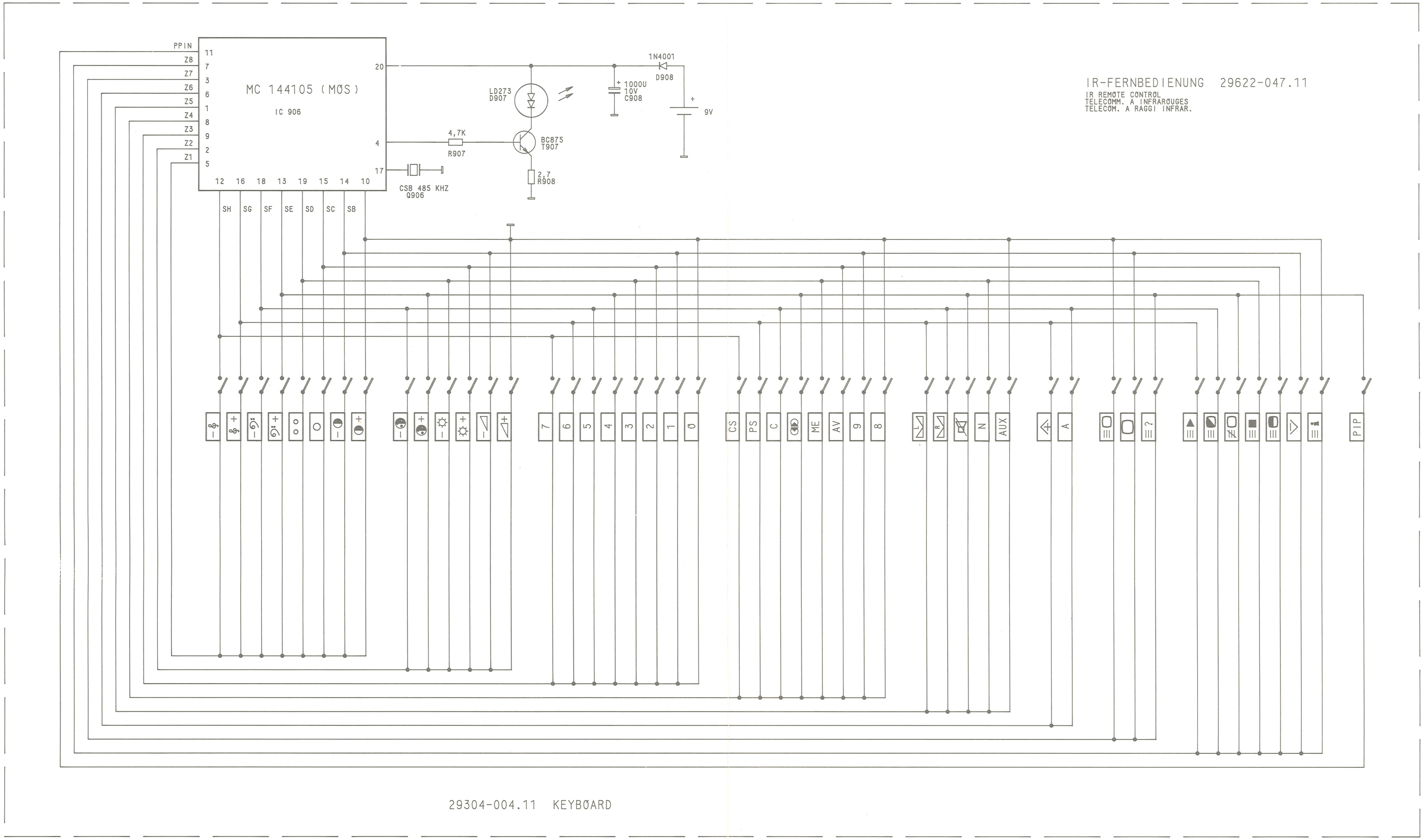
Farb/RGB-Modul
Chromal/RGB Module
Modulo Colore/RVB


F2561
DB
F2558
DR
F2551
LZ
BP
R2556
C9516
F2521
R9542
SSB
F4283

Bildrohr-Platte
Picture Tube Board
Piastra cinescopio


R771
VB
R751
VG
F4284

Fernbedienung 8 669 493 802
Remote Control
Comando a distanza


IR-FERNBEDIENUNG 29622-047.11
IR REMOTE CONTROL
TELECOMM. A INFRAROUGES
TELECOM. A RAGGI INFRAR.
MC 144105 (MOS)
IC 906
PPIN
Z8
Z7
Z6
Z5
Z4
Z3
Z2
Z1
11
7
3
6
1
8
9
2
5
20
4
17
12
16
18
13
19
15
14
10
SH
SG
SF
SE
SD
SC
SB
LD273
D907
1N4001
D908
1000U
10V
C908
9V
4,7K
R907
BC875
T907
2,7
R908
CSB 485 KHZ
Q906
7
6
5
4
3
2
1
0
CS
PS
C
ME
AV
9
8
N
AUX
A
PIP
29304-004.11 KEYBOARD

Funktionsüberblick

Das Zeilennetzteil hat 2 Merkmale:

- Den Zeilennetztrafo (ZNT) mit einem Ferritkern. Dieser Trafo hat Wicklungen für Netzteil und Zeilenendstufe.
- Die Netzteilfrequenz entspricht der Zeilenfrequenz.

Der ZNT dient der galvanischen Trennung, der Zeilenablenkung und der Erzeugung der Betriebsspannung. Durch feste und lose Kopplung der Wicklungen des ZNT wird erreicht, daß die Betriebsspannungen ausreichend belastbar sind, und keine nennenswerte Rückwirkung auf die Zeilentrafowicklung N-M entsteht.

Die Anlaufschaltung

Die Anlaufspannung erhält IC 655 vom Brückengleichrichter D 621 über R 641. Werden über die Widerstände R 642, 643 und 644 an Pin 2 ca. 10 V erreicht, steuert IC 655 über Pin 3 T 661 an (Voraussetzung: Pin 18 > 10 V).Das Zeilennetzteil schwingt an. Gleichzeitig steigt über Pin 2 die Stromaufnahme, und die Wicklung E/D des ZNT übernimmt die weitere Betriebsspannungsversorgung (D 647, R 647, C 647).

Der Oszillator im IC TDA 3640

Die Steuerimpulse für T 661 erzeugt ein Oszillator, der nach dem Schwellwertprinzip arbeitet. C 653 ist ein extern beschaltetes frequezbestimmendes Glied (Synchronbereich des Oszillators ca. 14-17 kHz). Der Oszillator schwingt so lange frei, bis die Referenzimpulse vom ZNT an Pin 12 größer als $+1\ V_s$ sind.
Bei Vollbetrieb (EIN) stehen an Pin 12 ca. $+5\ V_s$.

Die Zeilenendstufe

Im Stand-by-Betrieb ist der Ablenktransistor T 521 leitend. Periodisches zeilenfrequentes Ansteuern des Ablenktransistors entspricht dem Betriebszustand »EIN«. Die Energie für den Zeilenablenkkreis wird aus der EMK der Spule M-N gewonnen. Somit braucht T 521 keine zusätzliche Betriebsspannung.

Die Spannungsstabilisierung

In »stand-by« wird der Impuls der Wicklung E-D (feste Kopplung mit Wicklung A-B) als Referenz zur Stabilisierung herangezogen. Regelgröße an Pin 2 IC TDA 3640 ist +10,5 V.

Bei Vollbetrieb »EIN« muß die Spannung im Zeilenablenkkreis (Trafowicklung M-N) stabil gehalten werden. Dies geschieht über den Referenzimpuls der Wicklung C-D, die mit der Wicklung M-N fest gekoppelt ist. Die über D 633 gewonnene Gleichspannung ist proportional zur Bildbreite bzw. Hochspannung und wird über Pin 10 mit der an Pin 11 meßbaren Refernzspannung (ca. 3 V) verglichen. In diesem Regelzweig wird die +C-Spannung mit R 637 eingestellt. Bei 25"-Geräten auf 196 V und bei 28"-Geräten auf 192 V.

Schutzschaltungen des TDA 3640.

Es erfolgt sofortige Abschaltung bei:

- zu kleiner Betriebsspannung an Pin (≤7 V)
- zu großem I_{CE} des T 521 (negativer als −1 V an Pin 7)
- Netzüberspannung (Spannung an Pin 18 um 2,8 V größer als an Pin 2)
- Netzunterspannung (Spannung an Pin 18 um 1,4 V< als an Pin 2)
- zu großer Hochspannung (Zeilenrückschlagimpulse ≥6 V an Pin 12)
- überhöhter Kristalltemperatur (>135°C).

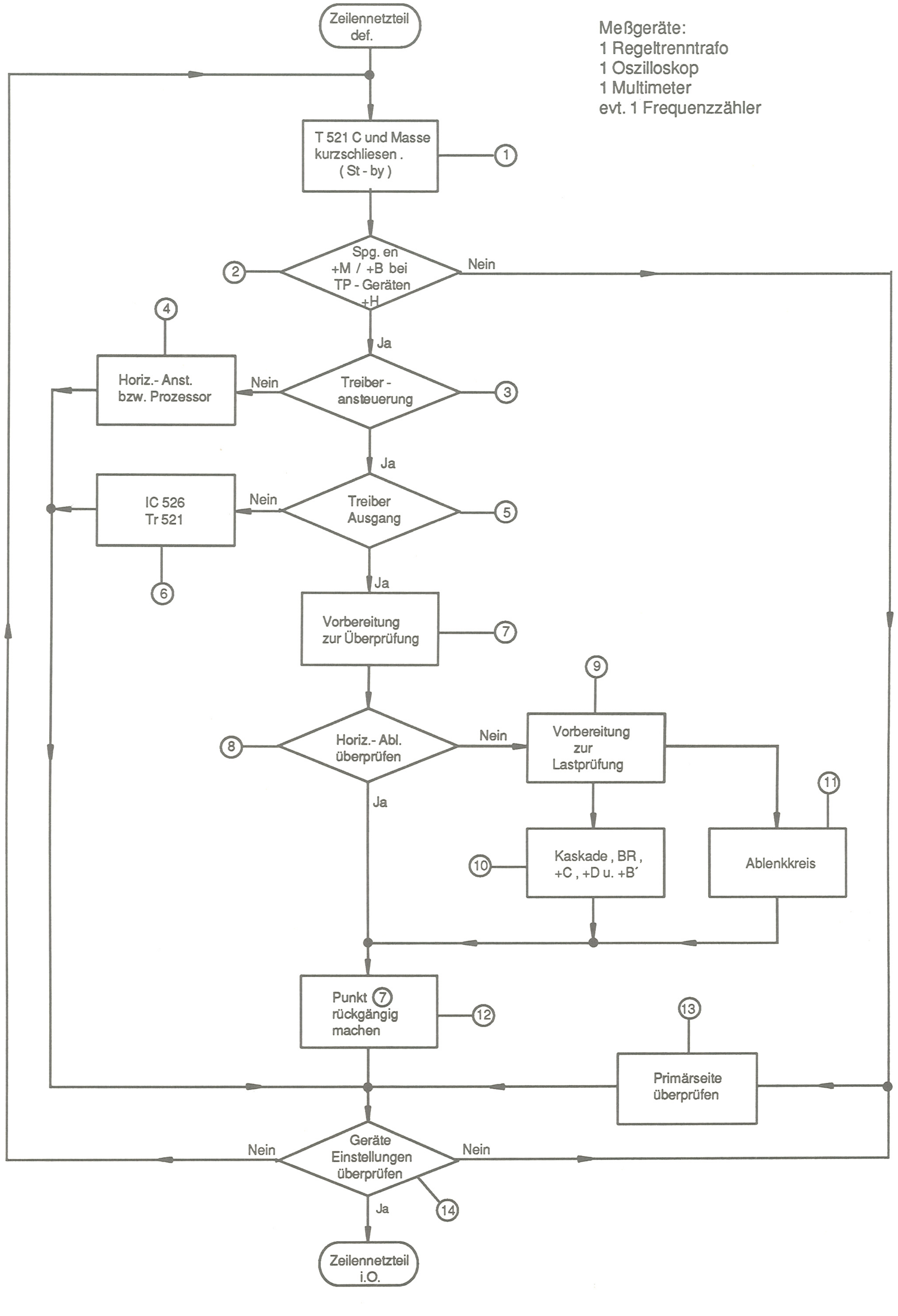
Schutzschaltungen des TDA 8140.

Es erfolgt sofortige Abschaltung bei:

- zu geringer Betriebsspannung an Pin 2 (< 7 V)
- Störimpulsen (falsche Steuerimpulse) während des Zeilenrücklaufes
- überhöhter Kristalltemperatur (> 160°).

Tips zur Fehlersuche

Meßgeräte:
1 Regeltrenntrafo
1 Oszilloskop
1 Multimeter
evt. 1 Frequenzzähler

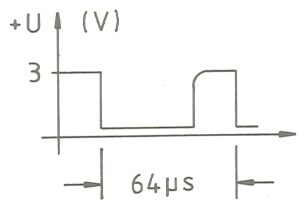

Zeilennetzteil def.
T 521 C und Masse kurzschliesen . (St - by)
①
②
Spg. en +M / +B bei TP - Geräten +H
Nein
Ja
④
Horiz.- Anst. bzw. Prozessor
Nein
Treiber - ansteuerung
③
Ja
IC 526 Tr 521
Nein
Treiber Ausgang
⑤
⑥
Ja
Vorbereitung zur Überprüfung
⑦
⑨
⑧
Horiz.- Abl. überprüfen
Nein
Vorbereitung zur Lastprüfung
⑪
Ja
⑩
Kaskade , BR , +C , +D u. +B´
Ablenkkreis
Punkt ⑦ rückgängig machen
⑫
⑬
Primärseite überprüfen
Nein
Geräte Einstellungen überprüfen
Nein
Ja
⑭
Zeilennetzteil i.O.

Erklärung zu den einzelnen Schritten im Flußdiagramm:

① Netzstecker ziehen
H - Ablenktransistor T 521 Kollektor mit Masse verbinden (Stand by)

② Gerät einschalten
Sekund. Spannung messen: +M 10-12,5 V ($I_{max.}$ 350 mA)
+B 9-11 V
+H 5 V (nur bei Fernbed.)

③ TDA 8140 Oszillogramm Pin 7 15625 Hz

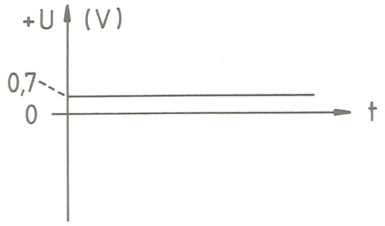


Spannung Pin 2 8-12 V
Spannung Pin 6 > 2,5 V = Normalbetrieb
Spannung Pin 6 0 V = Stand by (Fernbed.)

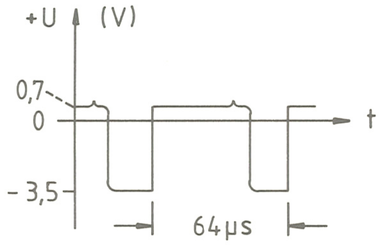
④ Ablenk-Baustein bzw. ZF/Synch.-Baustein:
Hor, Ausgang testen
Bedienteil - Prozessor: Stand by - Ausgang überprüfen.

⑤ Basis T 521 Oszillogramm:

bei IC 525 Pin 6: 0 V



bei IC 526 Pin 6: > 2,5 V



⑥ TDA 8140 mit Außenbeschaltung und T 521 überprüfen.

⑦ Vorbereitung zur Überprüfung der Horizontal-Endstufe
- Netzstecker ziehen, Si 624 entfernen
- Anschluß Ⓐ am Zeilennetztrafo TR 665 auftrennen
- Tr 521 Kurzschluß entfernen
- an TR 665 Anschluß Ⓜ eine Gleichspannung von ca. 130 V (ca. 450 mA) einspeisen.
  Hierzu kann auch das eigene Netzteil verwendet werden: Elko C 626 Masse und Plus mit Sekundär-Masse und TR 665 Anschluß Ⓜ verbinden. Regeltrafo auf 100 V~ stellen. Gerät einschalten.

⑧ Kurzzeitig 15-20 V Gleichspannung über Diode an + M einspeisen. Gerät über Fernbed. einschalten (bei richtiger + C erscheint zu großes Bild).
Wenn das eigene Netzteil verwendet wird, ist ein starker Netzbrumm sichtbar.
Achtung! Das Gerät jetzt nicht mehr mit Fernbed. auf Stand by schalten, sondern Betriebsspannung abschalten!

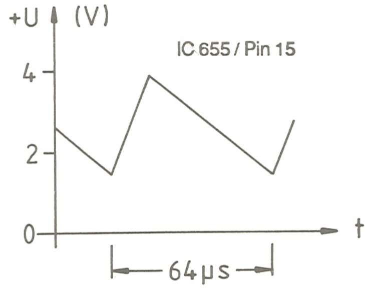
⑨ Vorbereitung zur Lastprüfung
Netzstecker ziehen, eventuell angelegte externe Hochvoltspannung (120 V) an TR 665/Anschluß Ⓜ abschalten.

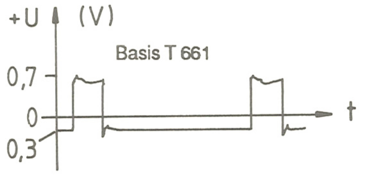
⑩ Kaskade U~ ablöten (Test: Kaskade und Bildröhre)
Last an Sekundär-Spannungsquellen prüfen:
Ohmmessung zwischen Masse und den Punkten +C, +D, +B, +B', +M, +H.
Der gemessene Widerstandswert muß bei richtiger Polung (Gleichrichterdiode in Sperrichtung) größer als 4kΩ sein.

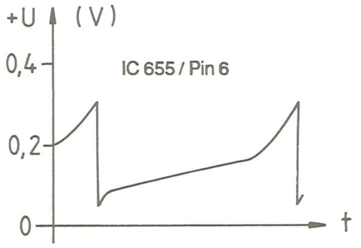
⑪ Tr 521 und Ablenkkreis (Horiz. Joch 1,5-3,5Ω) prüfen

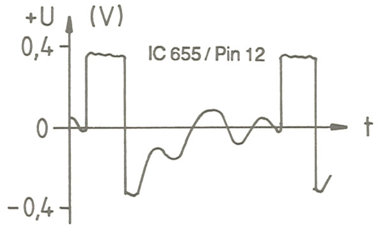
⑫ Alle Punkte unter rückgängig machen

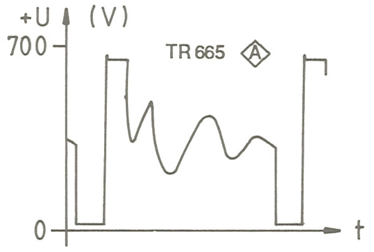
⑬ TR 665 Spannung Pkt. Ⓑ ca. 300 V
TDA 3640 Spannung Pin 18 ca. 13 V, Spannung Pin 17 ca. 6 V
Pin 2 ca. 10,5 V, Spannung Pin 16 ca. 3 V







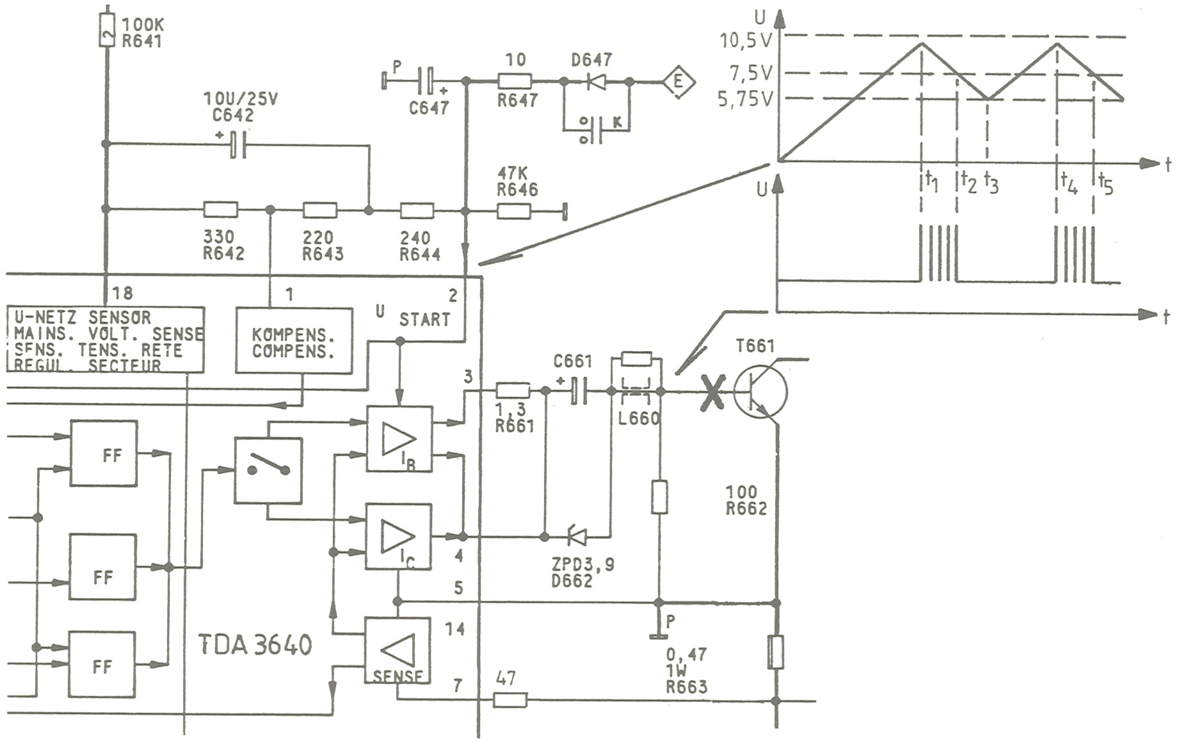




Mögliche Fehlerursachen: Si 624, T. 661, D 666, R 647, TDA 3640. Kurzschluß T 521 entfernen.

Einfacher Test für den Anschwing-Ablauf

Der Anschwing-Ablauf kann ohne Netzschalttransistor T 661 geprüft werden.
Hierzu den Basis-Anschluß T 661 von der übrigen Schaltung trennen:



Oszilloskop anschließen (Pin 2/C 661). Gerät einschalten.
An IC/Pin 2 steigt die Anlaufspannung bis knapp unter die Regelgröße 10 V an (Zeitpunkt t_1), Stromaufnahme ca. 100 µA.

Zeitpunkt t_1: IC 655 schwingt an (Stromaufnahme 15-20 mA) und gibt über Pin 3 etwa zeilenfrequente Steuerimpulse ab (ca. 1,5 V_{ss}).
Der Spannungsteiler R 642, R 643 und R 644 ist für den IC-Betrieb (20 mA) zu hochohmig. Über D 647 wird keine Betriebsspannung gewonnen. An Pin 2 sinkt die Spannung wieder ab.

Zeitpunkt t_2: Bei U_B 7,0 V schaltet IC 655 die Basis-Ansteuerung ab. U_B sinkt weiter.

Zeitpunkt t_3: Bei U_B 5,75 V schaltet IC 655 ab, Stromaufnahme nur noch ca. 100µA. U_B steigt wieder an und im Zeitpunkt t_4 beginnt der Zyklus erneut.

Am IC/Pin 15 ist das ständige Anschwingen und Abschalten durch Impulspakete erkennbar.

⑭ +C Spannung nach Schaltbild kontrollieren, ggf. an R 637 nachstellen, Netzregelung mit Regeltrafo testen (±10%).

Service am I²C-Bus (mit SIEMENS-Prozessor).
Bei Fehlfunktionen des Gerätes, die nicht auf Netzteil, Hochspannung und Ablenkung zurückzuführen sind, ist der I²C-Bus gemäß Tabelle 1 zu prüfen, bevor weitere Servicearbeiten nach Tabelle 2 durchgeführt werden.
Der µComputer in der Bedieneinheit IC 850 liefert Steuerbefehle für Tuner, ZF-Verstärker Videotext und IC 350 über den I²C Bus.
Hinweis:
Bei Modulwechsel ist das Gerät generell auszuschalten!
Auch in Stellung »Bereitschaft« darf kein Modul gezogen werden! MOS-handling beachten.

Tabelle 1

Messung	Meßwert	Meßpunkt	Mögliche Fehler
+ H	5 V	Pin 40, IC 850	D 682, IC 686, IC 850
12 MHz Takt Reset	12 MHz, 3 V_{ss} 4 V_{ss} nur im Einschaltmoment	Pin 19, IC 850 Pin 9	F 808, IC 850 C 811
I²C Bus	5 V_{ss}	Pin 21, 22, IC 850	Die I²C-Bus-Daten sind auch ohne TP-Bedienung oder Keyboardeingabe vorhanden. Bei fehlenden Daten: Die Leitungen SDA und SCL auftrennen. Sind dann die I²C-Bus-Daten vorhanden, liegt eine Überlastung des I²C-Bus vor. **Fehlerursache:** Tuner, ZF-Verstärker, Videotext und IC 350

Tabelle 2
Mögliche Fehlerarten des Gesamtgerätes

Fehler	Mögliche Ursache	Meßwert	Meßpunkt
Keine Frequenzabstimmung	Tuner (Speicher, PLL)	+ 0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner Pin 16 Tuner Pin 2 Tuner Pin 1
Keine Bedienfunktion	+ H, IC 850	+ 5 V	IC 850 Pin 40
LED falsche Anzeige	IC 850		
	F 808	4 MHz, 3 V	IC 850 Pin 19
Kein Ton	Keine Koinzidenzkennung (ZF-Verstärker	>3 V	IC 850 Pin 11
	IC 365/IC 355	+ M/ca. 23 V	IC 365/355 Pin 2
Keine Programmschaltung mit Fernb.	IR-Vorverstärker	IR-Signal 5 V_{ss}	IC 850 Pin 10
Keine Analogwerte für Helligkeit Kontrast Farbkontrast Tint	I²C-Bus, IC 350 D/A-Converter " " "	5 V_{ss} 1-3 V 2-4 V 2-4 V 0,5-11,5 V	IC 350 Pin 4, 5 Farb/RGB Pin 10 Farb/RGB Pin 11 Farb/RGB Pin 12 Farb/RGB Pin 3
Beim Einschalten mit der Netztaste schaltet das Gerät auf Bereitschaft.	T 816	beim Einschalten kurzzeitig »LOW« (Kollektor)	IC 850 Pin 13
Kein FBAS-Signal	Tuner	ca. 10 V	Tuner Pin 3
	ZF-Verstärker	ca. 10 V	ZF-Verst. Pin 10
	+ B'	+ 12 V	ZF-Verst. Pin 17
Gerät geht nicht in den Betriebszustand – akustisches Schwirren.	C 653 Toleranz zu groß oder defekt	① Tastkopf 1:10	IC 655 Pin 15

Short Functional Description

The line/power supply unit has two important features:
- the line/mains transformer (ZNT) with ferrite core. This transformer is provided with windings for the power supply and line output stages;
- the supply frequency corresponds to the line frequency.

The ZNT is used for electrical isolation, horizontal deflection, and generation of the operating voltage. The ZNT windings are tightly and loosely coupled to ensure that the load capacity of the supplies is high enough and that back effects on the line transformer winding N-M are avoided.

Startup Circuit

The starting voltage for IC 655 is obtained from the bridge rectifier D 621 via R 641. If the voltage on pin 2, which is derived from the resistor network R 642, 643, and 644, reaches a level of approximately 10 V, the IC 655 starts to drive T 661 via pin 3 (precondition: pin 18 >10 V). The line/power supply circuit starts to oscillate. Simultaneously, the current consumption drawn via pin 2 rises and the winding E-D of the ZNT takes over the operating voltage supply function (D 647, R 647, C 647).

Oscillator in IC TDA 3640

The control pulses for the T 661 are generated by are generated by an oscillator which operates on the threshold principle where C 653 is an externally connected frequency-determining component (oscillator retaining range 14-17 kHz approx.). The oscillator oscillates at a free-running frequency until the reference pulses from the ZNT exceed 1 V_p at pin 12. In full operating condition (ON) a voltage of about +5 V_p is applied to pin 12.

Line Output Stage

The deflection transistor T 521 is activated in stand-by mode. The cyclic line-frequency control of the deflection transistor corresponds to the "ON" operating mode. The power for the horizontal sweep circuit is derived from the elcetromotive force of coil M-N sao that no additional operating voltage is necessary for T 521.

Vooltage Stabilisation

In stand-by mode the pulse from winding E-D (tightly coupled with winding A-B) is used as a reference for stabilisation. The controlled variable is +10.5 V on pin 2 TDA 3640.
In full operating condition, that is "ON", the voltage in the horizontal sweep circuit (transformer winding M-N) must be stabilised to a constant level. This is achieved by means of a reference pulse from winding C-D which is tightly coupled with winding M-N. The resulting direct voltage obtained via D 633 is proportional to the width of the picture or high voltage and is applied to pin 10 and compared with the reference voltage (about 3 V) on pin 11. In this part of the circuit the +C voltage is adjusted by means of R 637 to 196 V and 192 V for 25" receivers and 28" receivers, respectively.

Protective Circuits of TDA 3640

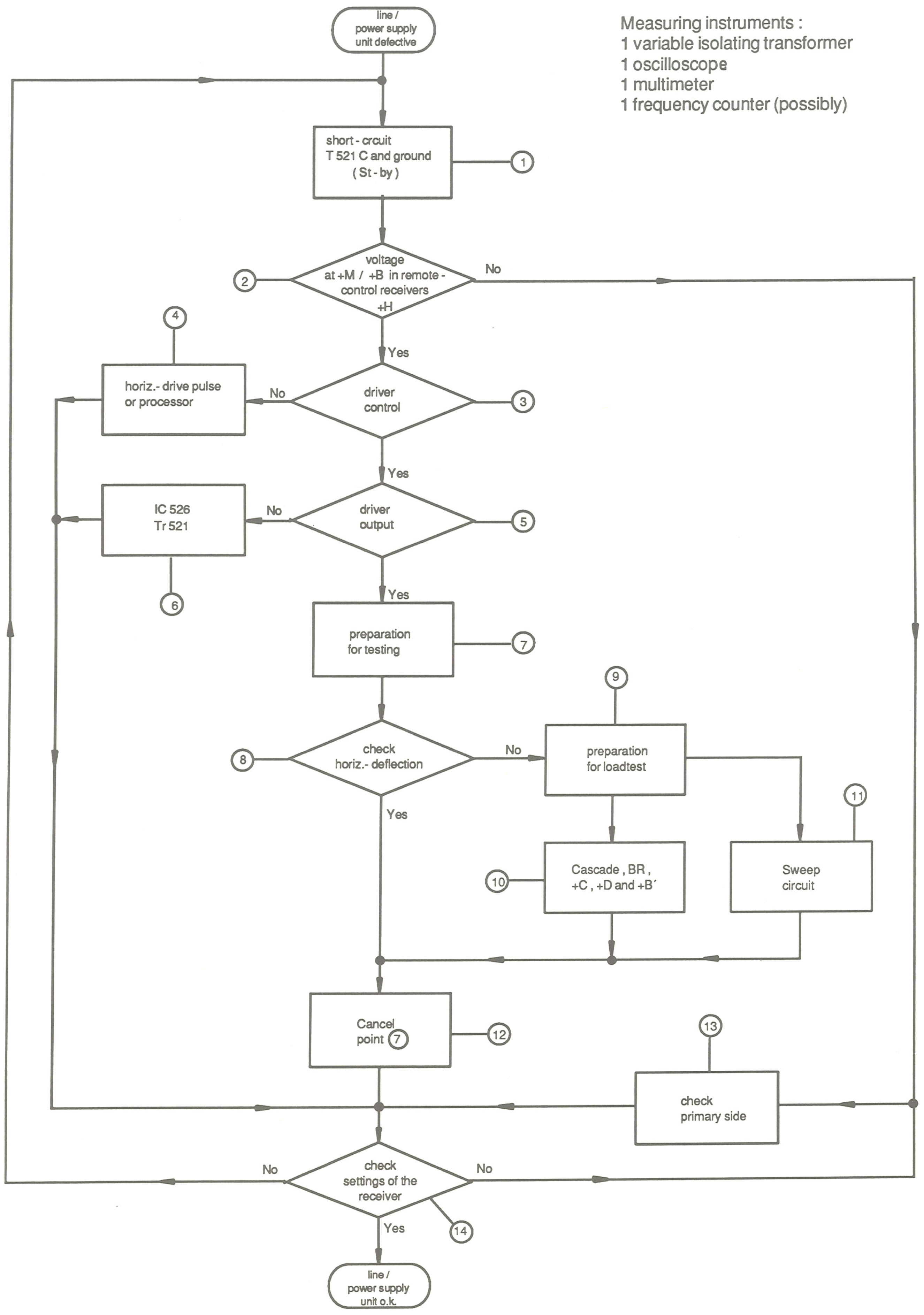
The protective circuits respond immediately if:
- the operating voltage on pin 2 is too low (≤7 V);
- I_{CE} of T 521 is too high (more negative than –1 V at pin 7);
- the power supply voltage is too high (voltage at pin 18 is 2.8 V higher than at pin 2);
- the power supply voltage is too low (voltage at pin 18 is 1.4 V lower than at pin 2);
- the high voltage is excessivley high (line flyback pulses ≥6 V at pin 12);
- the crystal temperature is too high (>135° C).

Protective Circuits of TDA 8140

The protective circuits respond immediately if:
- the operating voltage at pin 2 is too low (<7 V);
- interference pulses (incorrect control pulses) occur during line flyback;
- the crystal temperature is too high (>160° C).

Tips for Falut location

Measuring instruments :
1 variable isolating transformer
1 oscilloscope
1 multimeter
1 frequency counter (possibly)

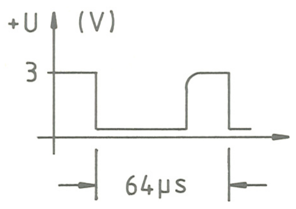

line / power supply unit defective
short - crcuit T 521 C and ground (St - by)
1
2
voltage at +M / +B in remote - control receivers +H
No
Yes
4
horiz.- drive pulse or processor
No
driver control
3
Yes
IC 526 Tr 521
No
driver output
5
6
Yes
preparation for testing
7
9
8
check horiz.- deflection
No
preparation for loadtest
Yes
11
10
Cascade , BR , +C , +D and +B´
Sweep circuit
Cancel point 7
12
13
check primary side
No
check settings of the receiver
No
Yes
14
line / power supply unit o.k.

Explanation of the individual steps in the flow chart:

① Disconnect the mains plug
Connect the horizontal sweep transistor T 521 collector to ground (stand-by)

② Switch on the receiver.
Check the secondary voltages: +M 10-12.5 V (I_{max} 350 mA)
+B 9-11 V
+H 5 V (only RC receivers)

③ TDA 8140 oscillogram pin 715625 Hz

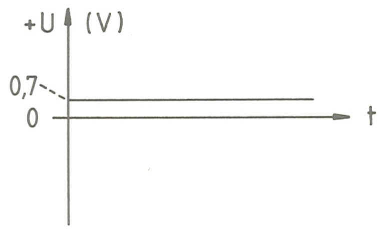


voltage pin 2 8-12 V
voltage pin 6 > 2.5 V = normal operation
voltage pin 6 0 V = stand-by (RC)

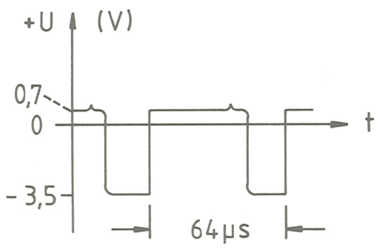
④ Deflection module and IF/sync module: check line output Control unit - processor: check stand-by - output

⑤ Oscillogram of base T 521

IC 526 pin 6: 0 V



IC 526 pin 6: >2.5 V



⑥ Check TDA 8140 with externally connected components and T 521

⑦ Preparations for checking the line output stage
- Disconnect the mains plug; remove Si 624
- Open connection Ⓐ of the line/mains transformer TR 665
- Remove the short circuit from T 521
- Apply a voltage of approx. 130 V (about 450 mA) to connection Ⓜ of TR 665.
  It is also possible to use the receiver's own power supply. For this purpose, connect the ground connection of the C 626 electrolytic capacitor and the positive pole to the secondary ground connection and Ⓜ of TR 665. Set the variable-voltage transformer to 100 V a.c..
  Switch on the receiver.

⑧ Apply a 15-20 V direct voltage for a short time to +M via an external diode. Switch on the receiver by means of the remote control (the picture is too large if +C is correct).
When using the built-in power supply an intensive mains hum will be visible.
Attention! Do not use the remote control to switch the receiver to stand-By but switch off the operating voltage!

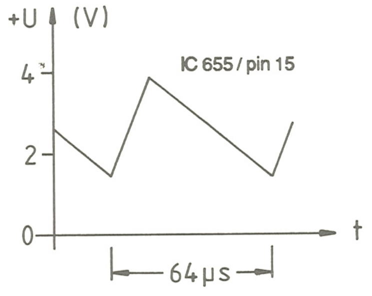
⑨ Preparations for load test
Disconnect the mains plug and switch off the external high voltage (120 V) possibly connected to TR 665/contact Ⓜ.

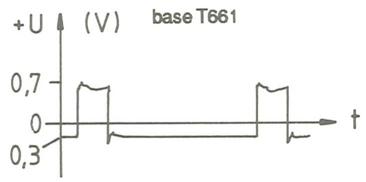
⑩ Unsolder cascade U a.c. (cascade and picture tube test)
Check the load at the secondary voltage sources:
Ohmic resistance between ground and points +C, +D, +B, +B', +M, +H. If the polarity is correct (rectifier diode in high-resistance direction) the measured resistance must be higher than 4 kOhm.

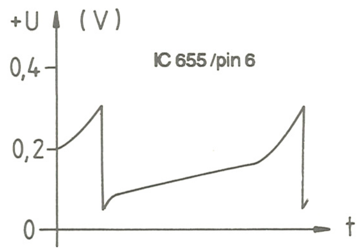
⑪ Check T 521 and sweep circuit (horizontal deflection yoke 1.5-3.5 Ohm)

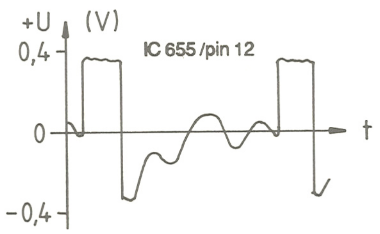
⑫ Cancel all preparatory measures under ⑦.

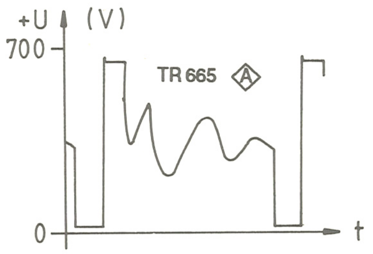
⑬ TR 665 voltage point Ⓑ 300 V approx.
TDA 3640 voltage pin 18 13 V approx., voltage pin 17 6 V approx.
voltage pin 2 10.5 V approx., voltage pin 16 3 V approx.







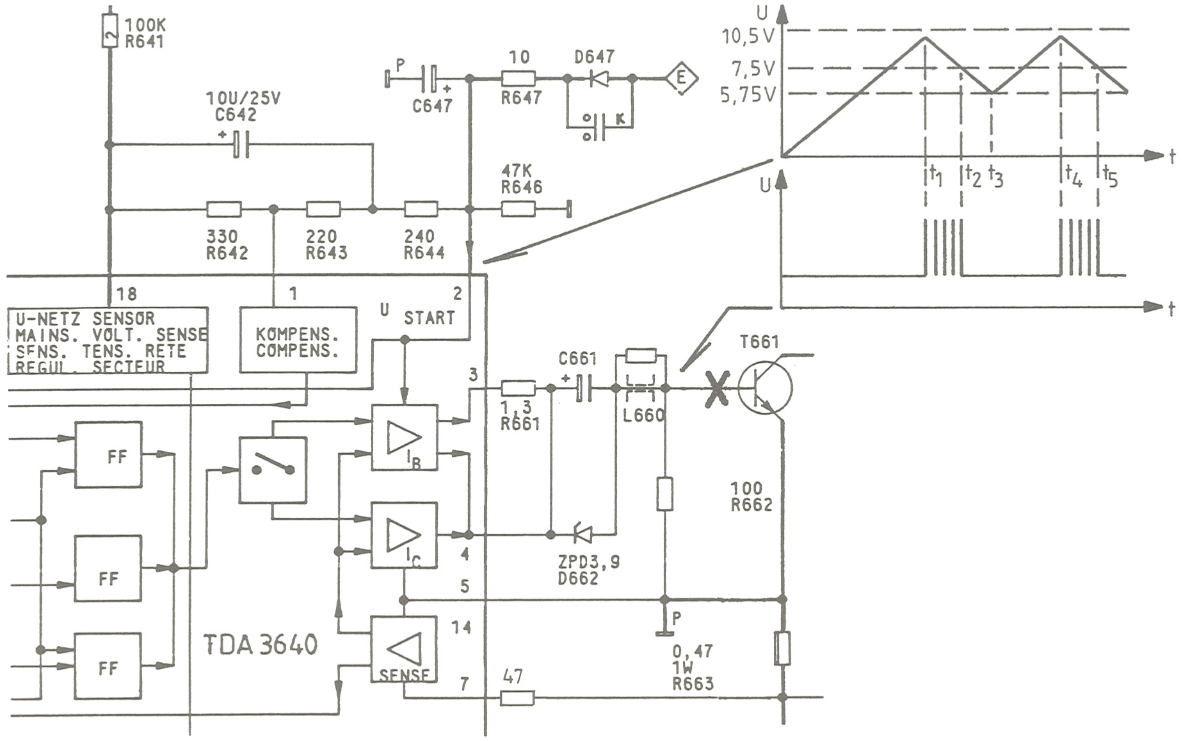




Possible causes of trouble: Si 624, T 661, D 666, R 647, TDA 3640.
Remove short circuit at T 521.

Simplified Test for the Startup Sequence

The startup sequence can be checked without the mains switching transistor T 661.
For this purpose, disconnect the base of T 661 from the circuit:



Connect an oscilloscope to pin 2/C 661. Switch on the receiver. On pin 2 of the IC the starting voltage must rise to just below the controlled variable of 10 V (time t_1); current consumption approx. 100µA.

Time t_1: IC 655 starts to oscillate (current consumption 15-20 mA) and supplies via pin 3 conrol pulses at approx. line frequency (1.5 V_{pp}). The voltage divider R 642, R 643, and R 644, is at too high a resistance to provide sufficient current for the IC to be in operation (20 mA required). There is no operating voltage obtained via D 647. The voltage at pin 2 decreases.

Time t_2: When the voltage U_B reaches 7.0 V the IC 655 stops driving the base. U_B continues to decrease.

Time t_3: When the voltage U_B reaches 5.75 V the IC 655 switches off; the current consumption is now only 100µA approximately. U_B rises and the cycle starts again at t_4.

On pin 15 of the IC the cyclic oscullation and switching off process can be identified by the packets of pulses.

⑭ Check the voltage +C according to the circuit diagram and readjust it with R 637, if necessary; check the power supply voltage regulation with the variable-voltage transformer (±10%).

Service checks on the I^2C bus (with SIEMENS processor)

If faluts occur in the set which cannot be attributed to the power supply unit, the EHT or the deflection system, the I^2C bus should be checked using Table 1 before further service work is carried out using Table 2.

Via the I^2C bus the microcomputer in the control unit IC 850 supplies control signals for the tuner, IF, videotext (teletext) and IC 350.

Note:

When a module is being changed, the set should be switched off completely. Modules must not be unplugged even in the »standby« mode! Observe MOS handling precautions.

Tabelle 1

Test	Test Figures	Test Point	Possible faults
+ H	5 V	Pin 40, IC 850	D 682, IC 686, IC 850
12 MHz clock Reset	12 MHz, 3 V_{pp} 4 V_{pp} only at moment of switch on	Pin 19, IC 850 Pin 9	F 808, IC 850 C 811
I^2C bus	5 V_{pp}	Pin 21, 22, IC 850	The I^2C bus data are present even without input from the remote control or keyboard. If data are absent disconnect the SDA and SCL lines. If data are then present on the I^2C bus, the I^2C bus is overloaded. Possible faults: Tuner, IF, Videotext (Teletext) and IC 350.

Tabelle 2

Possible faults which can occur in any part of the set

Fault	Possible Cause	Test Figure	Test Point
No frequency tuning	Tuner (memory, PLL)	+0,2–30 V	Pin 13, 15
	+ B' + H ◇M	+ 12 V + 5 V ca. + 4,5 V	Tuner pin 16 Tuner pin 2 Tuner pin 1
No functions appecpted	+ H, IC 850	+ 5 V	IC 850 pin 40
Incorrect LED indication	IC 850		
	F 808	4 MHz, 3 V	IC 850 pin 19
No sound	No coincidence identification (IF)	>3 V	IC 850 pin 11
	IC 365/IC 355	+ M/about 23 V	IC 365/IC 355 pin 2
Programme cannot be change with remote control	IR-preamplifier	IR-signal 5 V_{pp}	IC 850 pin 10
No analog signals for Brightness Contrast Colour contrast Tint	I^2C, IC 350 D/A-Converter " " "	5 V_{pp} 1-3 V 2-4 V 2-4 V 0,5-11,5 V	IC 350 Pin 4, 5 Colour/RGB, pin 10 Colour/RGB, pin 11 Colour/RGB, pin 12 Colour/RGB, pin 3
Set switches to standby mode on operation of power button	T 816	Short-time "LOW" on switch-on (collector)	IC 850, pin 13
No CCVS	Tuner	approx. 10 V	Tuner, pin 3
	IF	approx. 10 V	IF, pin 10
	+ B'	+ 12 V	IF, pin 17
Receiver does not go to working order – audible whistle	C 653 Tolerance too large or capacitor defective	① Probe 1:10	IC 655 Pin 15 IC 655 Pin 15

Prospetto delle funzioni

L'alimentatore con stadio finale orizzontale ha due caratteristiche importanti:
- il trasformatore di riga (ZNT) con nucleo in ferrite. Questo trasformatore è provvisto di avvolgimenti per alimentatore e stadio finale di riga
- la frequenza dell'alimentatore corrisponde alla frequenza di riga.

Il trasformatore serve per la separazione galvanica, la deflessione di riga e la produzione della tensione d'alimentazione. Mediante accoppiamento stretto e lasco degli avvolgimenti del trasformatore si ottiene che le tensioni d'alimentazione sono sufficentemente caricabili e non risultano effetti reattivi sull'avvolgimento N-M della sezione di riga del trasformatore.

Il circuito di spunto

La tensione di spunto giunge all'integrato IC 655 dal raddrizzatore a ponte D 621 attraverso R 641. Appena con le resistenze R 642, 643 e 644 si ottengono ca. 10 V al pin 2, l'integrato IC 655 comanda T 661 mediante pin 3 (condizione: al pin 18 deve esserci una tensione >10 V). L'alimentatore di riga entra in regime. Contemporaneamente aumenta l'assorbimento di corrente attraverso il pin 2 e l'avvolgimento E/D del trasformatore provvede ad ottenere l'ulteriore tensione di regime (D 647, R 647, C 647).

L'oscillatore in IC TDA 3640

Gli impulsi di comando per T 661 sono generati da un oscillatore che lavora secondo il principio di soglia. C 653 è per questo l'unico elemento che determina la frequenza, collegato esternamente (campo di sincronismo dell'oscillatore compreso tra ca. 14-17 kHz). L'oscillatore rimane in regime libero finchè gli impulsi di riferimento del trasformatore al pin 12 sono maggiori di $+1\ V_p$. Con apparecchio in regime al pin 12 si trovano ca. $+5\ V_p$.

Lo stadio finale di riga

In funzionamento stand-by il transistor di deflessione T 521 è conduttivo. Il comando periodico a ritmo di riga del transistor di deflessione corrisponde alla condizione di regime «EIN» (acceso). L'energia per il circuito di deflessione viene ricavata dalla FEM della bobina M-N. In tal modo T 521 non necessita di nessun altra tensione d'alimentazione.

La stabilizzazione della tensione

In stand-by l'impulso dell'avvolgimento E-D (accoppiamento stretto con l'avvolgimento A-B) viene utilizzato come riferimento per la stabilizzazione. Al pin 2 di IC TDA 3640 la grandezza di regolazione è +10,5 V.
Con apparecchio acceso la tensione nel circuito di deflessione orizzontale (avvolgimento M-N del trasformatore) deve rimanere stabile. Ciò avviene mediante l'impulso di riferimento dell'avvolgimento C-D che è accoppiato strettamente con l'avvolgimento M-N. La tensione continua ottenuta con D 633 è proporzionale alla larghezza di quandro risp.te all'EAT e sul pin 10 viene confrontata con la tensione di riferimento presente al pin 11 (ca. 3 V). In questa situazione la tensione +C viene regolata con R 637 al valore di 196 V per apparecchi da 25" e al valore di 192 V per apparecchi da 28".

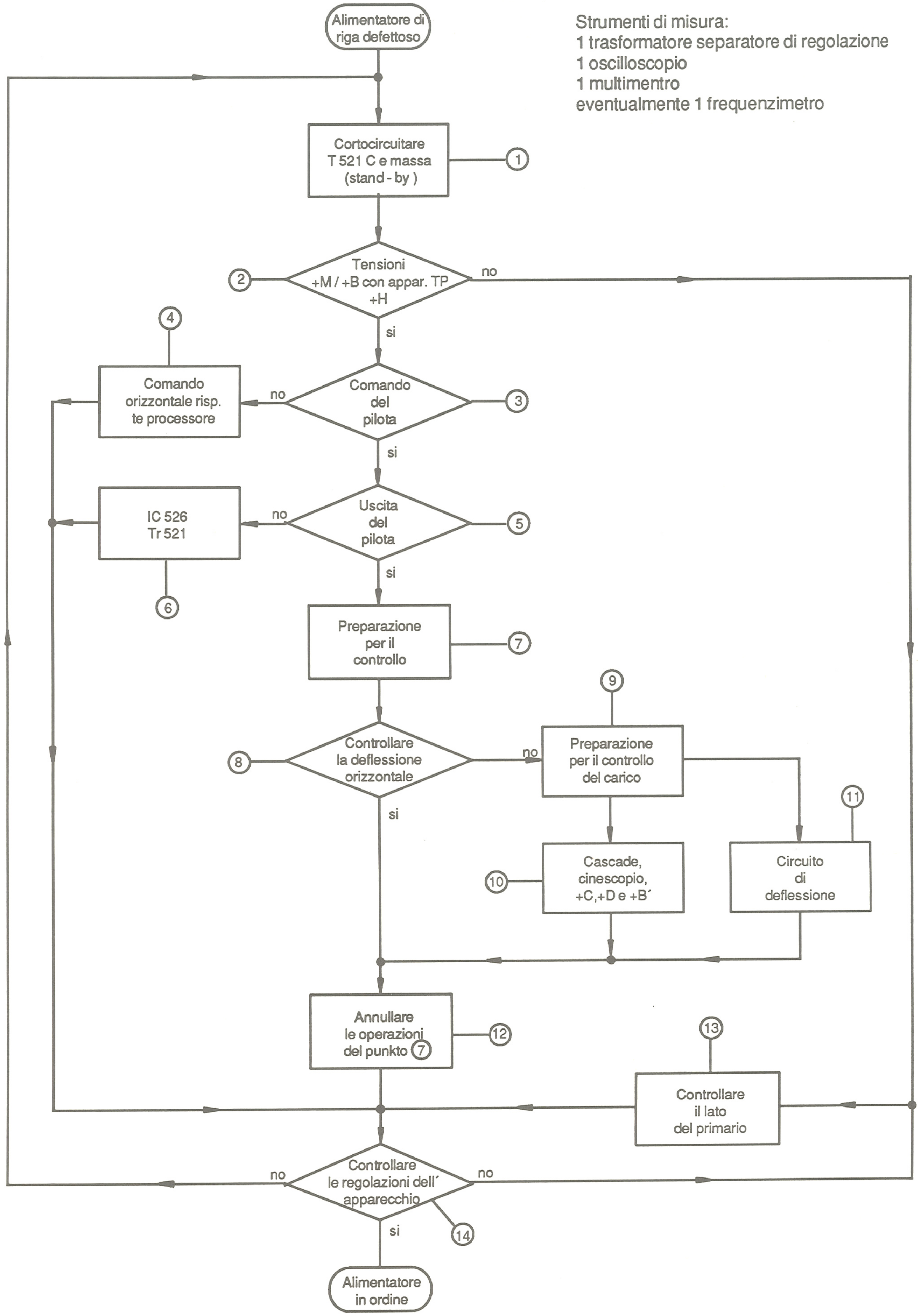
Circuiti di protezione del TDA 3640

Essi provocano un immediato spegnimento:
- quando al pin 2 la tensione di regime è troppo bassa (≤7 V)
- quando esiste eccessiva I_{CE} in T 521 (più negativa di −1 V al pin 7)
- in presenza di sovratensioni di rete (tensione al pin 18 superiore di 2,8 V rispetto al pin 2)
- in presenza di sottotensioni di rete (tensione al pin 18 inferiore di 1,4 V rispetto al pin 2)
- quando la EAT è eccessiva (impulsi di ritorno di riga ≥6 V al pin 12)
- con eccessiva temperatura del cristallo (>135° C).

Circuit di protezione del TDA 8140

Essi provocano un immediato spegnimento:
- quando al pin 2 la tensione di regime è troppo bassa (<7 V)
- in presenza di impulsi di disturbo (impulsi di comando errati) durante il ritorno di riga
- con eccessiva temperatura del cristallo (>160°C).

Suggerinenti per la ricerca guasti


Alimentatore di riga defettoso
Cortocircuitare T 521 C e massa (stand - by)
①
②
Tensioni +M / +B con appar. TP +H
no
si
④
Comando orizzontale risp. te processore
no
Comando del pilota
③
si
IC 526 Tr 521
no
Uscita del pilota
⑤
⑥
si
Preparazione per il controllo
⑦
⑧
Controllare la deflessione orizzontale
no
⑨
Preparazione per il controllo del carico
⑪
si
⑩
Cascade, cinescopio, +C,+D e +B´
Circuito di deflessione
Annullare le operazioni del punkto ⑦
⑫
⑬
Controllare il lato del primario
no
Controllare le regolazioni dell´ apparecchio
no
si
⑭
Alimentatore in ordine

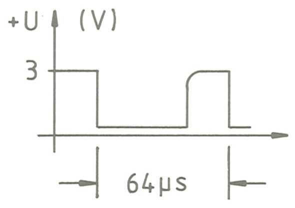
Strumenti di misura:
1 trasformatore separatore di regolazione
1 oscilloscopio
1 multimentro
eventualmente 1 frequenzimetro

Spiegazione dei singoli passaggi del diagramma di ricerca:

① Disinserire la spina di rete.
Collegare a massa il collettore del transistor di deflessione orizzontale T 521 (stand-by).

② Accendere l'apparecchio
Misurare la tensione secondaria: +M 10-12,5 V (I_{max} 350 mA)
+B 9-11 V
+H 5 V (solo app. con TP)

③ TDA 8140 Oscillogramma Pin 7 15625 Hz

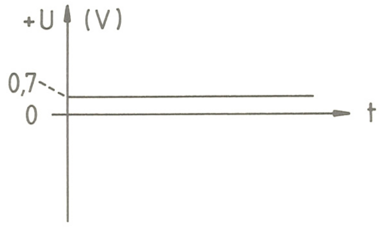


Tensione Pin 2 8-12 V
Tensione Pin 6> 2,5 V = funz. normale
Tensione Pin 6 0 V = stand-by (TP)

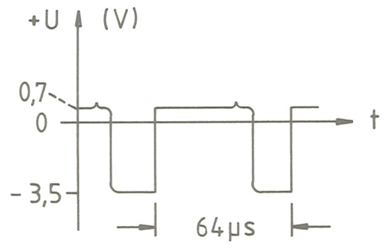
④ Modulo di deflessione risp.te modulo FI/sincronismo: controllare l'uscita orizzontale.
Modulo di comando - processore: controllare l'uscita stand-by.

⑤ Oscillogramma alla base T 521:

con 0 V al pin 6 di IC 526



con tensione >2,5 V al pin 6 di IC 526



⑥ Controllare TDA 8140 con cablaggio periferico e T 521.

⑦ Preparazione per il controllo dello stadio finale orizzontale
- Disinserire la spina di rete, togliere Si 624.
- Staccare il collegamento Ⓐ sul trasformatore TR 665.
- Allontanare il cortocircuito a TR 521.
- Applicare al collegamento Ⓜ di TR 665 una tensione continua di ca. 130 V (ca. 450 mA).
  Per questo può impiegato anche l'alimentatore proprio: collegare la massa di C 626 alla massa secondaria e il + al collegamento Ⓜ del trasformatore TR 665. Portare il regolatore separatore su 100 V~. Accendere l'apparecchio.

⑧ Applicare brevemente 15-20 V continui mediante il diodo a +M. Accendere l'apparecchio con TP (con +C corretta, appare un'immagine troppo grande).
Quando viene impiegato l'alimentatore proprio, è visibile un forte ronzio di rete.
Attenzione! Ora non commutare l'apparecchio su stand-by con telecomando, bensì togliere la tensione d'alimentazione!

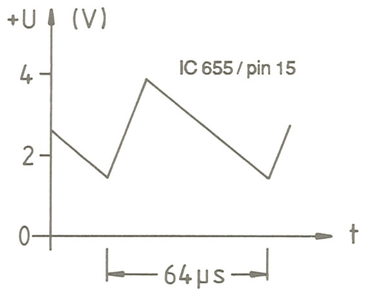
⑨ Preparazione per il controllo del carico
Disinserire la spina di rete, togliere la tensione di alimentazione esterna (120 V) eventualmente collegata a TR 665/collegamento Ⓜ.

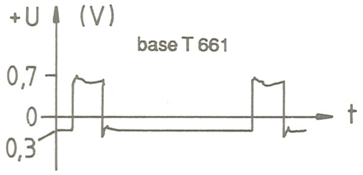
⑩ Dissaldare il cascade U~ (controllo del cascade e del cinescopio).
Controllare il carico alle sorgenti di tensione secondarie:
Misura ohmica tra massa e i punti +C, +D, +B, +B', +M, +H. Il valore ohmico misurato, con esatta polarità (diodo raddrizzatore con polarizzazione inversa) deve essere superiore a 4 kOhm.

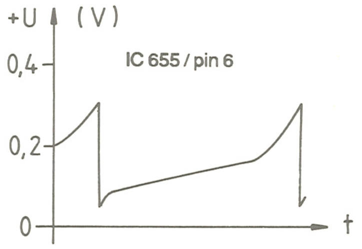
⑪ Controllare Tr 521 e il circuito di deflessione (giogo orizzontale 1,5-3,5 Ohm).

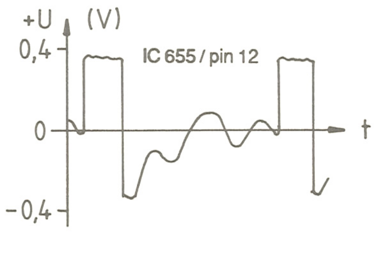
⑫ Annullare tutte le operazioni descritte al punto 7.

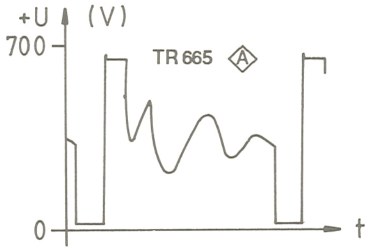
⑬ TR 665 tensione punto Ⓑ ca. 300 V
TDA 3640 tensione pin 18 ca. 13 V, tensione pin 17 ca. 6 V
tensione pin 2 ca. 10,5 V, tesnione pin 16 ca. 3 V





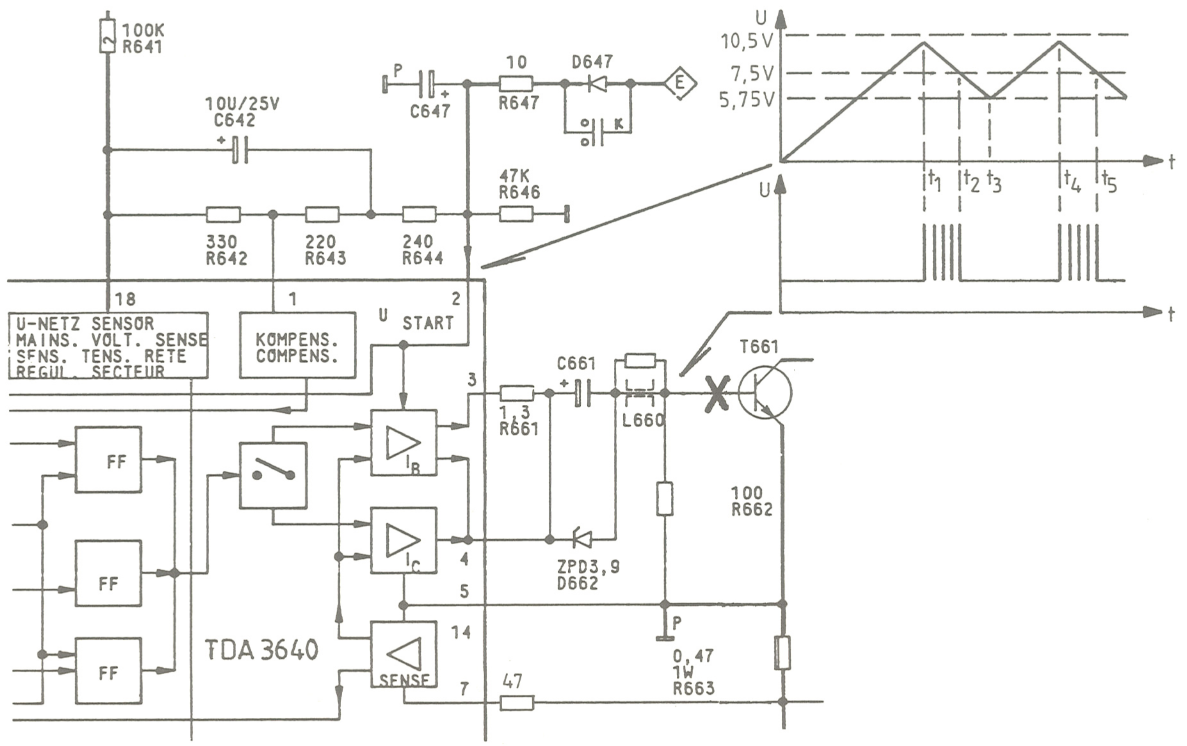






Possibili cause del guasto: Si 624, Tr 661, Di 666, R 647, TDA 3640.
Togliere il cortocircuito a Tr 521.

Semplice verifica dell'avviamento processo oscillatorio):
Questo può venir controllato senza il transistor T 661.
Interrompere quindi il collegamento della base di T 661 dal resto del circuito:



Collegare l'oscilloscopio (pin 2/C 661). Accendere l'apparecchio. Al pin 2 dell'integrato la tensione di spunto cresce appena al di sotto della grandezza di regolazione di 10 V (istante t_1), assorbimento di corrente ca. 100 µA.

Istante t_1: IC 655 oscilla (assorbimento 15-20 mA) e attraverso pin 3 invia impulsi di comando circa alla frequenza di riga (ca. 1,5 V_{pp}). Il partitore di tensione R 642, R 6432 e R 644 ha un valore ohmico troppo elevato per il funzionamento dell'integrato (20 mA). Mediante D 647 non viene ricavata nessuna tensione di alimentazione. Al pin 2 la tensione diminuisce nuovamente.

Istante t_2: Con U_B 7,0 V, IC 655 disattiva il circuito di comando della basse. U_B scende ulteriormente.

Istante t_3: Con U_B 5,75 V, IC 655 è disattivato, l'assorbimento è ancora ca. 100 µA. U_B sale nuovamente e all'istante t_4 il ciclo si ripete.

Al pin 15 dell'integrato è riconoscibile il continuo attivarsi e disattivarsi mediante pacchetti di impulsi.

⑭ Controllare la tensione +C secondo lo schema, eventualmente correggerla con R 637, controllare la regolazione della tensione di rete con il regolatore separatore (±10%).

Service per I^2C-Bus (con processore SIEMENS)

Se l'apparecchio funziona erroneamente e ció non dipende nè dall'alimentatore, nè dall'alta tensione o dalla deflessione, occorre controllare il bus I^2C secondo la tabella ; prima di effettuare altri lavori di assistenza come da tabella 2.
Il microcomputer nell'unitá di comando IC 850 fornisce le istruzioni per tuner, FI, televideo e IC 350 attraverso il bus I^2C.

Nota:
Spegnere l'apparecchio durante la sostituzione di un modulo! Non togliere il modulo memmeno con apparecchio in posizione d'attesa! Fare attenzione alle norme MOS.

Tabella 1

Misura	Valore di misura	Punto di misura	Possibili guasti
+ H	5 V	Pin 40, IC 850	D 682, IC 686, IC 850
Cadenza 12 MHz Reset	12 MHz, 3 V_{pp} 4 V_{pp} solo all'atto dell'accensione	Pin 19, IC 850 Pin 9	F 808, IC 850 C 811
Bus I^2C	5 V_{pp}	Pin 21, 22, IC 850	I dati nel bus I^2C sono presenti anche senza comando da TP o immissione tramite tastiera. Se i dati mancano: interrompere le linee SDA e SCL. Se ora i dati sono presenti, nel bus I^2C c'è un sovraccarico. **Possibili cause del guasto:** tuner, FI, televideo, e IC 350.

Tabelle 2

Possibili guasti nell'apparecchio

Guasto	Possibile causa	Valore de misura	Punto di misura
Non é possibile sintonizzare la frequenza	Tuner (memoria, PLL)	+ 0,2–30 V	Pin 13, 15
	+ B' + H Ⓜ	+ 12 V + 5 V ca. + 4,5 V	Tuner Pin 16 Tuner Pin 2 Tuner Pin 1
Nessuna funzione viene accettata	+ H, IC 850	+ 5 V	IC 850 Pin 40
Indicazione LED errata	IC 850		
	F 808	4 MHz, 3 V	IC 850 Pin 19
Manca l'audio	Nessun riconoscimento di coincienza (FI)	>3 V	IC 850 Pin 11
	IC 365/IC 355	+ M/ca. 23 V	IC 365/355 Pin 2
Non viene commutato il programma con TP	Preamplif. IR	Segnale IR 5 V_{pp}	IC 850 Pin 10
Manca il valore analogico per	Bus I^2C, IC 350	5 V_{pp}	IC 350 Pin 4, 5
luminosità	convertitore D/A	1-3 V	Colore/RGB Pin 10
contrasto	"	2-4 V	Colore/RGB Pin 11
contrasto colore	"	2-4 V	Colore/RGB Pin 12
tinta	"	0,5-11,5 V	Colore/RGB Pin 3
Accendendo con tasto rete l'apparecchio commuta in posizione d'attesa	T 816	All'atto dell'accensione brevemente «LOW» (collettore).	IC 850 Pin 13
Nessun segnale FBAS	Tuner	ca. 10 V	Tuner Pin 3
	IF	ca. 10 V	FI Pin 10
	+ B'	+ 12 V	FI Pin 17
L'apparecchio non va in posizione di funzionamento (ronzio)	C 653, tolleranza troppo grande e difettoso	①, sonda dell' oscillografo 1:10	IC 655 Pin 15